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ABSTRACT

Monitoring Learning Achievement (MLA), a joint UNESCO-UNICEF international education assessment initiative, obtains information on the "effectiveness of basic education provision[s] in terms of actual learning achievement." The empirical evidence from the 1999 MLA project countries provides both a diagnosis and possible actions to be taken in terms of policy, curriculum, teaching, and learning. To assure comparability, procedures were taken to design and validate the common-core instruments and their results across markedly different countries and contexts. This document contains six chapters: (1) "Introduction" (Education for All; A Framework for Action; Goals and Targets; Monitoring Learning Achievement; Feedback for Improving Education Quality; Project Objectives; Key Project Characteristics; Expected Outcomes; Implementation); (2) "Design and Implementation" (Regional Approach; Description of Instruments; Tests; Questionnaires; Development of Instruments; Pilot Tests; Sampling Framework; Sampling Procedures; Implementation Strategies; Data Analysis; Reporting); (3) "Assessing Learner Performance: Equity-Quality Trade-Offs" (Achieving Quality of Education for All: Learner Performance Profiles across the Region; Knowledge on HIV/AIDS Transmission and Prevention Behavior; The 1992-1998 Monitoring Learning Achievement (MLA) Surveys in Africa: Repeated Lessons To Be Re-Learnt); (4) "Teaching and Learning Conditions" (Learner Background; Home Background; Home Learning Support; Teacher Background; Teaching Conditions; Teachers' Work Environment and Activities; School Head Background; School Characteristics; Conclusion); (5) "Factors Determining Learner Performance" (Global Model: Factors Influencing Learner Performance; Determinants of Learning Achievement and Their Inter-Relationships; Botswana; Madagascar; Malawi; Mali; Mauritius; Morocco; Niger; Senegal; Tunisia; Uganda; Zambia; The Regional Analysis: Similarities and Uniqueness; Conclusion); and (6) "Agenda for Action" (Quality of Education for All Can Be Attained; Improving and Sustaining Minimum Levels of Mastery Learning; Recognizing Specificity in Learning Environments; Understanding the Dynamics of Teaching and Learning; Challenge of Achieving Gender Parity; Redressing Urban and Rural Disparities;

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Adaptation of Schools to the Needs of the Children; Decisive Role of the Home Learning Environment; Limitations; General Recommendations; Conclusion). References, appendices, 28 tables, and 26 figures are included in the document. (BB)

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towards

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1999 MLA Project

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WITH AFRICA FOR AFRICA

Towards...

Quality Education for All

1999 MLA Project

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FOREWORD

Empowering Africa and African educators towards Quality Education for All is no more a wish but a present living reality, which needs to be known and shared from within and outside Africa as a whole. This report is a march towards this end. The Joint International UNESCO-UNICEF Monitoring Learning Achievement (MLA) Project not only has a record of its own worldwide but also a particular one on the African continent. With Africa For Africa has turned the far-reaching dream of African expertise into action through their participation in the MLA Project.

Capacity Building and Capacity Sharing are now preparing the road towards Africa's recognition of its sustainable human development and mobilisation possibilities. Imperative enough, this process allows expression of what African education should be in terms of its context, quality, content, coverage and effectiveness so as to reach all and the so-called "predicted unreachables", in particular.

This report demonstrates that access to quality education for all is a fundamental human right that can be achieved if there is full commitment towards the learner as she/he is, from the teacher in what she/he can do in enhancing the teaching and learning process; from the family for what support they can provide; from the school if it reaches its targeted "clienteie"; and from the decision-makers if there is real will and conviction.

Providing mastery level of education to all African children is a necessity in all its meaning. The empirical evidence from the 1999 MLA project countries provides both a diagnosis and the possible actions to be taken in terms of policy, curriculum, teaching and learning. The criterion-reference approach used serves to examine what is learnt and taught, and under which conditions. Tedious but fruitful procedures were also used to design and to validate the common-core instruments and their results across markedly different countries and contexts assuring comparability.

With Africa and For Africa, a movement towards quality education for all could not start without the strong support of African governments; African policy-makers, educators and front-line implementers; African learners - their parents, teachers and school managers; bilateral and multilateral partners of Education for All (EFA), and the hardworking national, regional, and international MLA Project teams.

.Vinayagum Chinapah
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UNESCO, Paris
March 2000

MONITORING LEARNING ACHIEVEMENT

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EXECUTIVE SUMMARY

The Monitoring Learning Achievement (MLA) project is a joint UNESCO/UNICEF international educational assessment initiative which began in 1992. It aims at obtaining information on the "effectiveness of basic education provision in terms of actual learning achievement" (EFA, 1998). The project forms part of the Education for All (EFA) 2000 Assessment which aims to construct a comprehensive picture of the progress of participating countries towards their own EFA goals since the 1990 world conference in Jomtien. In particular, the results of this MLA project may be used to answer Indicator 15 of the EFA 2000 Assessment which is: "The percentage of learners having reached at least grade 4 primary schooling who master a set of nationally defined basic learning competencies" (p. 20, EFA, 1998).

To this end, the core aims of the MLA project were:

- to establish a set of measurable indicators and a methodological approach for monitoring the quality of basic educational programmes,
- to undertake periodic assessment of learning outcomes, to provide up to date information for decision makers at national and sub-national level, and to formulate interventions to reduce observed disparities (e.g. regional, gender, socio-economic),
- to establish common levels of learning outcomes,
- to support long-term monitoring in order to track progress towards the improvement of quality in basic educational programmes,
- to build national/sub-national capacity, skills and technical expertise needed in monitoring the quality of basic educational programmes through providing training and capacity building workshops, seminars, and through actual implementation of project activities, and
- to strengthen information exchange and dissemination, and facilitate the extension of networks in the field of basic education.

Key characteristics of the MLA project approach are its learner-centred orientation, its emphasis on participation, broad based partnerships and co-operation, its adoption of country specific approaches, and most important of all, its focus on capacity building and sharing.

Around 50 countries all over the world have participated in the MLA project to date. Eighteen African countries have participated in the 1999 cycle of this ongoing project. A regional approach to the project has been adopted as a strategy for pooling local expertise as well as developing the capacity of representatives from participating countries. The two regional initiatives are: an Eastern and Southern and a Northern, Central and Western region.

The MLA project comprise the development of tests to measure the learning achievement of Grade 4 learners in respect of basic learning competencies which entail the minimum basic knowledge and analytical skills that learners should be expected to have in the Life Skills, Literacy and Numeracy learning areas. A criterion-reference approach was used to assess the minimum (MML) and desired (DML) mastery levels in each learning area, using tests developed in the region by representatives of the participating countries and local resource persons. Through questionnaires completed by parents, teachers, school heads and the

learners themselves, essential background information is elicited to form a thorough overview of the learning and social environments that influence the performance of learners. This is a unique and historic event in African education and an ideal opportunity for identifying areas for improvement of national education systems so as to ensure that the specific needs of all learners are addressed.

The methodology employed for administering the instruments, as well as for conducting the analysis was agreed to jointly by representatives of participating countries in the course of a series of instrument development and training workshops convened in the Anglophone and Francophone regions. Implementation, however, was the responsibility of the participating ministries of education and related national authorities and institutions. Resource centres were established in Morocco and in South Africa to provide technical or logistical assistance to participating countries.

In this report, results from the data collected in 1999 for the following 11 African countries are presented: Botswana, Madagascar, Malawi, Mali, Morocco, Mauritius, Niger, Senegal, Tunisia, Uganda and Zambia. It should be noted that more than 50 000 African Grade 4 learners and their parents as well as over 1400 teachers and schools participated in the 1999 MLA surveys in Africa to promote the movement towards attaining quality education for all. The results from other participating countries have not yet been completely processed. They are: Angola, Burkina Faso, Cameroon, Cote d'Ivoire, Comoros, South Africa and The Gambia.

Since the results contained in this report comprise only those variables common to both Anglophone and Francophone country groups, information on a number of other variables has been excluded. It is expected that the sub-regional and national MLA reports will provide a much more detailed analysis than that undertaken in the Africa regional report.

The analysis of the data undertaken in this report has produced a number of observations and recommendations for the African region, which are summarised below:

ASSESSING STUDENT LEARNING ACHIEVEMENT: EQUITY – QUALITY TRADE-OFFS

- Only four countries met their Jomtien learning achievement targets (that is where at least 80 % of learners should attain the defined minimal learning competencies) in Life Skills; while only two met the Literacy target. No country met the Numeracy target. There are wide variations between countries in respect to their progress towards achieving the Minimum Mastery Learning (MML) targets.
- With the exception of three countries, 9 out of 10 learners surveyed have not yet reached the desired mastery learning (DML) targets.
- Countries where the mother tongue/lingua-franca is the same as the medium of instruction, out-performed others in most learning areas.
- In terms of gender disparities, the data showed that gender differences are either small or non-significant, while comparisons of the between-country differences show as large as 37 mean-point score differences. Gender parity in learner performance at the lower grades of basic education is an easily achievable goal provided this issue is accorded high priority by education ministries and by the education family at large.

- With regard to urban-rural disparities, in all participating countries, urban school learners outperformed rural school learners in all learning areas.
- In all participating countries, except Mauritius, learners from private schools fared significantly better than learners from public schools in all three learning areas.

The findings presented above with reference to differences in learner performance between boys and girls, between urban and rural schools, and between public and private schools followed the same patterns as the ones observed in earlier African MLA surveys conducted between 1992 and 1998. Gender differences are in most cases statistically non-significant, while statistically significant differences in learner performance are observed between urban and rural and between private and public school learner groups.

SCHOOLING AND LEARNING CONDITIONS

Learner profile

- There is acceptable gender representation of boys and girls in all participating countries with the average age of learners ranging between 9 and 13 years. In almost all countries, at least 95% of learners have one or more meals a day. However, a range of between 0.4% and 4.7% of learners do not have any meals on a regular basis.
- The majority of learners have a very positive attitude towards school and the teacher, so differences in performance cannot be attributed to differences in learner attitude. The pattern in learner participation in sport and cultural activities suggests generally higher activity levels in the Anglophone group of countries.
- While homework is given by over 85% of all teachers, in six countries at least 40% of learners do not have anybody at home to help them with their homework.
- In more than half of the countries (7 our of 11), less than 50% of learners attended pre-school classes.
- In the majority of countries, over 80% of learners walk to school. For many learners the time-distance factor produces high difficulty levels in accessing school.
- For more than 70% of all learners, the language of learning and teaching was not their mother tongue.
- In most countries, the first time pass rate for learners in Grades 1 to 4 ranges between 80% to 99%.

Home environment

- In most countries, the majority of learners live with both parents. However, a significant minority of learners live with only one parent which means that possible adult supervision is reduced.
- In all countries, the most common reason given by learners for not doing homework was because they had to help their parents.
- Most parents surveyed had some education, at least to completion of primary school. There was limited home reading materials and very limited access to information in terms of printed or electronic media or library access. Parents manifested a very positive opinion about the value of schooling for their children, but household support for school activities could be improved.

Teachers' background and teaching conditions

- There is a wide variation between countries in terms of gender balance as well as age of the teaching force. Teachers in the majority of the participating countries have considerable experience, varying between 10 and 20 years.
- Some observation by a supervisor was evident in most participating countries. Further improvement in this respect is important to ensure acceptable levels of quality and accountability.
- The indication that a high percentage of teachers would like to change to another career if they had the opportunity is alarming.
- Results indicated that chalkboards, chalk and learning materials are not fully available in most countries, and only one country indicated adequate availability of teacher guides. The availability of additional resources to enable teachers to engage in professional development is noted as being limited in the majority of countries.
- It is encouraging to note that many teachers spend a considerable time on schoolwork after school hours, with the most common activities being the preparation for teaching lessons and marking learners' work. A high percentage of teachers (over 30%), however, indicated that travel time to and from school affects their work.

School and school head background

- In every participating country, except Madagascar and Botswana, the percentage of female school heads is far lower than the percentage of male school heads.
- In most schools surveyed, the issue of teacher absenteeism was not considered a problem. However, many school heads noted that the issue of school safety is a concern.
- Schools differed in terms of the amenities and facilities available on the school property to support learner activities especially extra-mural activities.

Determinants of Learner Performance

The use of LISREL path analysis to examine the 1999 MLA survey data clearly demonstrated how so many factors (personal, home, school, and teacher and classroom) may interchangeably affect learner performance in different country-settings

In the majority of the countries surveyed, the location and type of school that the learner is exposed to, strongly contribute to variations in learner performance as do the family background characteristics and home learning processes. The ability of parents to assist learners in doing school work has been identified as a major contributing factor to learner performance in most countries.

RECOMMENDATIONS

The recommendations contained in this report include the following:

- Quality of education for all in Africa is attainable provided that the problems of educational access are adequately addressed.
- Greater emphasis should be placed on sustaining a minimum level of mastery in all learning areas and all grades as a preliminary step towards attaining the desired level of mastery.
- More attention should be given to curriculum planning and the provision of adequate materials and resources for improving the teaching and learning process.
- Special attention should be accorded to teacher working conditions, as well as in-service training needs and support for teachers.
- Systematic and continuous learning assessment schemes are needed in most educational systems in order to understand the *dynamics* of the teaching and learning context. This will empower ministries to develop relevant strategies so as to guarantee that a learner's potential and attributes can be optimised.
- Redressing urban-rural disparities in learner performance can enhance education growth in both quantitative and qualitative terms' and should be the cornerstone of national, regional and international educational policy-making.
- School effectiveness can be improved through developing 'soft resources' such as discipline, working in a reinforcing collective milieu, partnership a commitment to excellence and conducive managerial leadership.
- The presence of someone at home to assist learners with schoolwork was identified as a key determinant of learner performance in many of the countries surveyed. This implies that greater attention needs to be allocated to improving levels of adult and lifelong education.

For African education to succeed in meeting the demands of its people as well as the challenges posed by globalisation and the technological age, schools need to adapt to the needs of all learners. Only by providing quality education for all as a fundamental human right and striving towards attaining desired levels of mastery for all African children, can the African continent meet the challenges of the next century and take its rightful place in the international arena. Any success in ensuring and in sustaining quality of education for all in Africa will require collective support and full commitment of all stakeholders to the challenges of the learners of the 21st century.

CHAPTER I
INTRODUCTION

Whether or not expanded educational opportunities will translate into meaningful development... depends ultimately on whether people actually learn as a result of these opportunities...It is therefore necessary to define acceptable levels of learning acquisition for educational programmes and to improve and apply systems of assessing learning achievement.

(World Declaration on Education for All [Article 4])

The development of endogenous capacities to meet the basic learning needs of all requires significant improvement in the managerial, methodological and analytical capacities of many developing countries.

(Chinapah, 1992:1).

Some 50,000 pupils, their parents, teachers and schools are surveyed in 1999 to examine Jomtien's goal – Towards Quality Education for All in Africa – A unique and historical event!

EDUCATION FOR ALL

In 1990, representatives of more than one hundred and fifty governments gathered in Jomtien, Thailand. Their purpose was to attend the World Conference on Education for All which had been organised in response to widespread recognition of deterioration in education systems in the 1980s. It is important to recognise that millions of children and adults have remained illiterate, have been wrongly and/or inadequately educated and have been poorly prepared for life in their own societies.

The conference served as an important milestone in the international mobilisation of human energies towards achieving the goal of ensuring access to basic education for all. In addition to the problem of educational access, the quality of educational programmes was seriously questioned at the conference. The "World Declaration on Education for All" (EFA) which was adopted at the conference served as the foundation document for interventions by policy makers in governments, international and bilateral development agencies and non governmental organisations.

The majority of developing nations responded to EFA by: evaluating their education systems, formulating policies aimed at improving basic education, strengthening management capacity of people and institutions, creating a more supportive environment for policy, broadening partnerships, diversifying resource bases and exploring ways of improving delivery of basic education.

A FRAMEWORK FOR ACTION

The ultimate goal affirmed by the World Declaration on Education for All, was to meet the basic learning needs of all children, youth and adults. A Framework for Action to Meet Basic Learning Needs was developed and proposed as a reference and guide for national governments, international organisations, aid agencies and non-governmental organisations (NGOs) working in the field. This Framework could be used by countries to develop their own specific plans of action and programmes in line with support and mandates

from their respective constituencies. The framework recognised that even though countries might share common concerns in meeting the basic learning needs of their citizens, the actual needs would vary in nature and intensity depending on contextual factors such as the levels of basic education available and the socio-economic conditions prevailing.

GOALS AND TARGETS

The objectives of the "Declaration" and the "Framework" documents recognised the need for decisive action on a large scale with clear goals and targets. It was hoped that goal setting would assist in conveying a sense of urgency and in sustaining the attention and focus of planners, evaluators and practitioners on meeting the needs of the targeted clients. In addition, observable and measurable targets would assist in the objective assessment of educational progress. The six fundamental objectives identified for EFA were:

- expansion of early childhood care and development;
- universal access to and completion of primary education by the year 2000;
- improvement in learning achievement such that an agreed percentage of an appropriate age cohort (i.e.: 80% of learners) attains or surpasses a defined level of necessary learning achievement;
- reduction of the adult illiteracy rate to half of its 1990 level by the year 2000, and the reduction of the disparity between male and female illiteracy rates;
- expansion of basic education and training in essential skills required by youth and adults;
- increased acquisition by individuals and families of the knowledge, skills, and values required for better living and for sustainable development through all educational channels.

MONITORING LEARNING ACHIEVEMENT

At Jomtien in 1990, it was recognised that appropriate systems for monitoring progress in meeting EFA goals have to be developed. Based on the main objectives identified for EFA above, a set of eighteen 'indicators' of progress towards achieving these objectives were specified in the EFA 2000 Assessment guidelines. Indicator 15 in this set was given as: "The percentage of learners having reached at least Grade 4 of primary schooling who master a set of nationally defined basic learning competencies".

A Joint UNESCO-UNICEF Monitoring Learning Achievement (MLA) project was initiated in 1992 to obtain information on the "effectiveness of basic education provision in terms of actual learning achievement". The aim of this project was therefore to develop instruments for measuring the learning achievement of learners (Grade 4 learners, in particular) in respect to the minimum basic knowledge, competencies and analytical skills expected in the following learning areas: Life Skills, Literacy and Numeracy. An equally important objective of the MLA project was to provide a thorough overview of the learning environment of the learners, at home, in the community, at school and in the classroom. To this end, information was gathered through questionnaires administered with the learners surveyed and with their respective teachers, school heads and parents. The target defined by the Jomtien EFA Declaration, namely that 80% of a cohort should attain or surpass a defined level of necessary learning achievement, was assessed in most MLA surveys in the areas of Literacy, Numeracy and Life Skills since 1992.

This joint UNESCO/UNICEF MLA project contributes therefore to the Education for All 2000 Assessment which aims to construct a comprehensive picture of the progress of participating countries towards their own Education for All goals since the 1990 Jomtien World Conference.

FEEDBACK FOR IMPROVING EDUCATION QUALITY

The rationale for developing relevant systems of assessing learning achievement is "not only to measure what was actually being learned, but also how well the (education) system is working" (Chinapah, 1997:7). Assessment of children's educational outcomes is not only an integral part of the educational process, but it is also crucial for monitoring the implementation of educational programmes and the evaluation of their impacts. Educational achievement data obtained during the course of on-going intervention provides important feedback and essential information for formative evaluation and continuous improvement of educational programmes.

It is recognised that for a type of assessment to be of any use in improving educational quality, it has to be oriented towards inducing a response from practitioners in their roles as teachers, managers or policy makers. For this to be possible, the MLA instruments had to be flexible and adaptable to the unique contexts of classrooms, schools and communities so as to uncover information that could be used by the actors concerned. In other words, the assessment type chosen should "not only be able to provide feedback but also (be able) to help bring about changes based on it" (Chinapah, 1997:7).

PROJECT OBJECTIVES

The major aim of the MLA project was to reinforce countries' national capacity to monitor the quality of their basic educational programmes. More specifically, this aim was to be achieved as follows:

- to establish a mechanism for periodic monitoring of the quality of basic educational programmes,
- to undertake assessment of learning outcomes on a regular basis in order to provide an information base for policy interventions for reducing observed disparities in learning outcomes (e.g. regional, gender, socio-economic),
- to establish common levels of learning outcomes, and,
- to develop methods and indicators for long-term monitoring in order to formulate policies aimed at improving basic education.

Monitoring the quality of basic educational programmes is a continuous and long-term process rather than a one-off activity. It has to develop and strengthen national monitoring capacities. As a built-in continuous evaluation process, the design should make adequate and relevant information available to decision-makers in order to allow them to formulate policies and programmes for qualitative improvement of basic education.

It is required that schools' and learners' needs are to be regularly analysed and understood in a contextual manner, while bearing in mind the different operational settings in which they are located. In essence, the main research challenge is: "to identify and delineate factors influencing learner achievement in different schools functioning in different external environments and internal conditions"(UNESCO - UNICEF, 1993:1).

KEY PROJECT CHARACTERISTICS

The overall MLA Project approach has a number of key characteristics.

- *Capacity Building*: An integral part of this process involves the implementation of capacity building programmes in order to mobilise expertise in each national context. It is essential to generate a critical mass of core trainers at the national level and also of appropriate persons at the sub-national level so that the MLA cycle can be sustained over time. The multiplier effect or cascade effect where trainers in turn train others is to be put into practice.
- *Participation*: At the national level, it is imperative that the involvement of representatives of ministries, research institutions and educational practitioners is activated. Only through generating adequate participation from all stakeholders can a viable monitoring culture be established.
- *Multidisciplinary*: Cross-disciplinary interaction of practitioners in education, health, nutrition and civics must be encouraged.
- *Co-operation*: The process of managing the project should maximise partnerships and utilisation of endogenous human resource capacities (e.g. South – South exchange) as well as bilateral and international co-operation. Utilising economies of scale and leveraging advantage from the expertise shared between participating countries can only accrue collaborative and cost-effective benefits.
- *Country specific approaches*: The MLA approach requires the development of a country specific approach to the monitoring processes in order to suit the unique conditions pertaining to that context. This would entail the appointment of national and sub-national task forces and the construction of country specific instruments. These should reflect the country's unique needs and priorities in the realms of formal, non-formal, and early childhood education.
- *Dissemination*: The widespread dissemination of the results from the MLA project at national and sub-national education levels is essential to drive internal improvements towards education quality. In order to make information and analysis accessible and useable, data reporting and analysis must be undertaken at all levels, i.e., from the national, to regional, district, and school levels. The availability of this data makes the cycle of school quality improvement systematic, holistic and possible.
- *Learner-centred orientation*: The MLA approach is explicitly a learner-centred monitoring system with the intention to promote the development of learner centred curricula, textbooks, assessment techniques, and teaching–learning processes. The MLA approach aims at strengthening teaching–learning relationships that affirm the active participation of the learners in their own learning and development.

EXPECTED OUTCOMES - BUT ALREADY REALISED

The MLA Project was expected to achieve the following outcomes:

- the development of a set of measurable indicators geared to the improvement of the quality of basic education;
- the provision of up-to-date information to decision-makers at the national/sub-national level to monitor progress towards the improvement of the quality of basic educational programmes;
- building national/sub-national capacity in monitoring the quality of basic educational programmes by providing necessary skills and technical experience through training and capacity building workshops, seminars and actual implementation of the project activities; and

- strengthening information exchange and extension of networks in the field of basic education.

In order for the project to succeed , the design comprised:

- a simple, workable and sustainable survey methodology;
- appropriate flows of information and linkages for actions at different levels of policy-making, and implementation of measures to improve the quality of basic educational programmes; and
- the mechanisms and modalities for promoting national capacity building,

using a holistic approach to ensure national ownership and wider participation in the project as a whole.

The approach was viewed as a strategy leading not only to a better understanding of the factors impeding and/or improving the quality of basic educational services, but also to the development of feasible alternate strategies for improving the quality of basic education and for monitoring its effectiveness.

IMPLEMENTATION

Based on the framework contained in the document, "Joint UNESCO - UNICEF Project on Monitoring Education for All Goals: Focusing on Learning Achievement", the MLA project began in 1992 with an initial set of five participating countries. The project objectives were refined through a series of in-country identification missions and workshops including an International Workshop on Survey Methodology at UNESCO in 1993. A second group of countries joined the project in 1994, and benefited from the experience of the five pilot countries, namely China, Jordan, Mali, Mauritius and Morocco (see Chinapah, 1997).

Since then, the MLA project has annually brought on board several countries from all regions of the world. Today there are around 50 countries at different phases of implementing the MLA surveys. Some 20 additional countries have requested to join this MLA project and to carry-out the surveys during the period 2000-2002.

The experience of the MLA project has been continuously reviewed at international and regional workshops where participants have examined follow-up mechanisms for national capacity building as well as the sustainability of their monitoring systems. Several national reports, training modules, batteries of tests and questionnaires and a Handbook "Monitoring Learning Achievement - Towards capacity building" (Chinapah, 1997), are now available to all those countries that have expressed their interest in joining this international project. The flexibility of the monitoring methodology developed by the MLA project has constantly encouraged countries to conduct their national surveys for different grades, levels and types of education and learning. In the years to come, the out-of-school household-survey for 14-year olds and above developed by the MLA project partners will be launched in several countries.

Monitoring the quality of education and learning, in particular, on a regular basis has become a necessity in a number of countries after having experienced the results of the MLA project. The project has been turned into a movement within and between the participating countries since 1992. This African Regional Report is a demonstration of such a movement towards improving the quality of education in Africa. The MLA project can be a vital instrument for the post DAKAR Declaration and Framework as it has been for Jomtien.

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CHAPTER 2
DESIGN AND IMPLEMENTATION

In this chapter, the methodological structure of the MLA project is presented. Given the magnitude of the project and its application in a variety of regional and national contexts, it was necessary to plan each phase meticulously. The project went through the following stages: official request from participating countries, preparation and approval of the Project Document with the specification of the objectives and expected outcomes, the implementation strategies, the calendar and budget, the setting-up of the national and sub-national task forces, the development of instruments, piloting and finalising of these instruments, selecting samples of schools and learners, field testing, data capturing and data processing, data analysis and report-writing and the national seminar for the discussion and wider dissemination of the results from the project.

This overview does not provide detailed information on all aspects of the methodology, but can only provide a synopsis of its key features. Firstly, the importance of a regional approach to the MLA project is highlighted. This is followed by a synopsis of the content and coverage of the tests and instruments used. Thereafter, the pilot phase of the project is briefly referred to. Finally, an account of the implementation strategies of the project is given.

REGIONAL APPROACH

A regional approach was adopted as a strategy for pooling relevant expertise to facilitate the execution of the MLA project. In this case, a group of countries from the same region collectively worked in order to prepare the instruments to be used in the project; to develop the frameworks for selecting the sample; to conduct the analysis; and finally, to write reports related to the MLA data. Although a common approach to instrument development was adopted, the principle of recognising regional specificity or uniqueness was provided for by devising first and foremost a core set of items common to the region and then followed by country specific items. The regional core items were jointly developed by all delegates with the intention that they should be administered in all participating countries. The country specific items were developed specifically to meet the needs and characteristics of each participating country by its respective national task force.

In Africa, the project was conducted in two sub-regions: the Eastern and Southern African region comprising countries where English, or Portuguese is mainly the language of instruction , and the West and North African region, comprising countries where Arabic or French is mainly the language of instruction.

A vital component of the regional approach was its specific focus on endigenous human capacity mobilisation and strengthening. Thus all planned group activities served the purpose of simultaneously achieving the goals and activities of the project itself as well as developing the national capacity of participating countries. Resource persons from within the Africa region with expertise and experience in educational assessment and measurement, research methods, planning and statistics were mobilised to provide technical assistance. In addition, two sub-regional resource centres were established to assist countries in the region to successfully implement the MLA project.

DESCRIPTION OF INSTRUMENTS

The MLA project aimed firstly tc generate information on the levels of learning achievement in the three learning areas of literacy, numeracy and life skills. A complementary aim was to elicit information on conditions of teaching and learning of the surveyed learners at home, in the community, at school and in their respective classes. Several sets of instruments (tests and questionnaires) were designed, developed, piloted and tested. The core instruments and items for the 1999 MLA Africa surveys were developed by the two sub-regional groups according to the specifications given below:

TESTS

Literacy Test

The literacy test was designed by language specialists from the different sub-regions to measure the 1999 Grade 4 learners' basic learning competencies in literacy. The assessment of a learner's communicative competence formed the basis of the MLA framework for item construction (Chinapah, 1997:132). This framework covers four major learning domains in which learners' mastery is measured, namely: vocabulary, reading comprehension, writing and grammar. Most items were not constructed as loose standing items, but were presented in a context. Learners had to demonstrate the necessary strategic, socio-linguistic, discourse and grammatical competencies to interpret or communicate a particular message for a clear purpose.

FIGURE 2-1: EXAMPLE OF AN ITEM IN THE LITERACY TEST

Your teacher has asked you to introduce your friend to the Gardening Club. Write about your best friend by answering the following questions in full sentences:

The first sentence has been started for you as an example.

- What is your best friend's name?

  My best friend's name is _____

- How old is your best friend?

  _____

- What do you like about your friend?

  _____

The Anglophone countries agreed that Grade 4 learner's basic competencies in literacy would be measured in English as a second language, with the exception of Mauritius which tested literacy in both English and French and Mozambique in Portuguese. The Francophone countries measured Grade 4 learners' proficiency in literacy in French as their second language, with the exception of Morocco and Tunisia which used Arabic. The items in the Moroccan and Tunisian literacy tests therefore placed more emphasis on free written expression than on word recognition, without deviating from the framework for item construction. Consequently the possible negative effects of translation were eliminated.

Numeracy Test

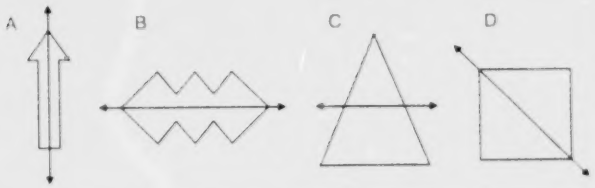
Several learning domains were identified for the numeracy test and they altogether refer to an ability to apply decoding, writing, computing, application and measuring skills in a problem-solving context. These skills are acquired by an appreciation of the utility of appropriate arithmetic operations in particular contexts, as well as an understanding of the implications of quantitative statements about naturally occurring trends in every day life. In this project, numeracy skills were tested in the following domains:

- Numbers (numerical manipulations): including addition, subtraction, multiplication and division of whole numbers and fractions, as well as a comprehension of decimal notation.

- Geometry: the recognition of shape, line in simple and complex geometric patterns, and an understanding of dimensionality and perspective.
- Measurement: an understanding of the concepts underlying the use of measuring devices for the quantification of the physical dimension as well as the temporal dimension [e.g.: distance, proportionality, volume, weight].

FIGURE 2-2: EXAMPLES OF ITEMS IN THE NUMERACY TEST

- What is 4 x 24?
  - A. 424
  - B. 244
  - C. 96
  - D. 28
- In what unit is road distance measured?
  - A. Litre
  - B. Metre
  - C. Kilometre
  - D. Centimetre
- Which of these does NOT show a line of symmetry?



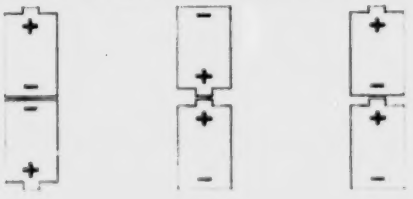
Life Skills Test

The MLA Life Skills Test assessed the basic knowledge, competencies and skills that reflected a functional understanding of information and its application to personal circumstances in a given life domain. The Life Skills Test was designed to assess basic competencies in the five domains given below. There were slight differences between the Francophone and Anglophone sub-regions in terms of their emphasis on certain specific sub-domains.

- Health, nutrition, sanitation and hygiene: The items in this domain aimed at measuring children's awareness, skills and knowledge of basic hygiene, nutrition and sanitation issues affecting their general health.
- Civic sense, protection of the environment, community development: The items in this domain were designed to test children's skills, knowledge and experiences of the social and natural environment and to ascertain whether they were empowered to act on selected issues that affect their daily lives and futures.
- HIV/AIDS and related behaviour: The items in this domain were targeted at tapping the ability of children to think critically, to make decisions and solve problems in situations which could result in contracting of HIV/AIDS. Another aim was to establish the orientation and attitudes of children with respect to the caring of HIV/AIDS infected persons.
- Science and technology: The ability to apply scientific and technological thinking to everyday problems is necessary for children to master their everyday environment. It can lead to improved productivity and self-sufficiency with respect to basic necessities. The test items were therefore designed to assess the extent to which children had acquired and could apply basic science and technology skills and knowledge.

FIGURE 2-3: EXAMPLE OF ITEMS USED IN THE LIFE SKILLS TEST

- Which is the right way to join batteries for torch light?



- Which of the following spread Malaria?

Science and technology competencies represent an area of learning, which is underdeveloped in most African schools. The MLA approach gives recognition to this area which is of critical importance in enabling individuals to master their environment, especially given the increased availability of information and communication technologies in developing contexts.

QUESTIONNAIRES

The quality of the teaching and learning process is dependent on contextual factors that influence the learner. A number of contextual variables that are identifiable in the immediate environment of the teaching-learning situation (classroom and school) and in the external environment (home and social milieu) can influence the achievement of the learner. In order to systematically capture key contextual variables that influence learning achievement, four different questionnaires were developed: Pupil Questionnaire (target: selected Grade 4 learners). Teacher Questionnaire (target: the teachers of the selected learner group), Parent Questionnaire (target: the parents of the selected learner group), and a School Head Questionnaire (target: Head teachers of schools where the selected learner group was enrolled).

Pupil Questionnaire

In addition to demographic information, the Pupil Questionnaire aimed to elicit information on a range of situational, attitudinal and motivational characteristics of learners. The pupil questionnaire dealt with the following items: learners' personal characteristics such as age, sex, language, grades repeated; their situation at home in terms of access to school and the commitment of their parents to assisting and encouraging them; their attitudes towards school and homework given by the teacher as well as their ability regarding the completion thereof; their choice of subjects and participation in extra-mural activities; and, their access to learning materials, libraries, information and communication technologies.

Parent Questionnaire

On account of the age of the targeted learner population (Grade 4 learners) certain necessary information about parents and home circumstances had to be elicited directly from the parents. Possible limitations on parental ability to complete the questionnaire on account of their not being literate were recognised. It was proposed that this limitation could be offset through assistance from teachers, neighbours and/or family members available at the time the questionnaire was to be completed.

The parent questionnaire was specifically designed to gather information regarding the home environment of the learners that could affect their learning achievement. The questionnaire requested personal information such as family structure, age, marital status, educational background, and occupation of parents. Information was required on the demography of the home, such as the total number of people living in the dwelling, and the number of relatives, siblings and other resident members of the household. In order to determine the learners' home background, information was requested regarding: income sources, type of dwelling, availability and quality of amenities, access to transport, possession of information and communication technology, and food and nutritional status of the home. Items also focused on attitudes of parents regarding: the value of financial investment in schooling, their commitment to assisting their children with homework, the degree to which they were concerned with, and participated in school activities, as well as their aspirations for the education of their children.

Teacher Questionnaire

The Teacher's Questionnaire was structured so as to generate information on teachers that could assist in explaining variations in the profiles of their learners' learning achievement scores in the domains of life skills, literacy and numeracy. The teacher questionnaire paid attention to basic personal and professional characteristics such as sex, age, academic qualifications, training and experience. The instrument also focused on variables that could influence the style and quality of teaching-learning interactions such as the media of instruction, number of learners, number of repeaters, and number of grades taught and the number of class groups sharing the same classroom space. In addition, the instrument required information relating to the availability of various types of classroom equipment, amenities (such as electricity), facilities (including facilities for learners with special needs), teachers' guides, learning support materials, workbooks for learners, stationery, and support equipment (such as duplicating machines) in the particular school. Teachers were also requested to provide information highlighting: the frequency and timing of 'supervisory' visits, availability of services in aid of professional development, workload including time allocated to various functions such as preparation, administration and self development, time and costs of daily travel to school. A core set of questions was developed regarding assessment practices including the frequency and range of assessment modalities. Finally, teachers were canvassed on the critical issue of their career commitment and on their identification of factors responsible for poor learners' performance.

School Questionnaire

The questionnaire that was the most extensive of the project targeted the school head. The data collected through this questionnaire was considered important on the basis that a variety of variables that operate at this level contribute to the managerial and institutional culture of the school. These variables can have significant influence on learner achievement. The questionnaire was designed to obtain information in the following categories: basic school back-ground; school learner enrolment statistics; school head and teaching staff information; school physical facilities, amenities and services; health, safety and security aspects; school finance, governance and management.

DEVELOPMENT OF INSTRUMENTS

As has been noted earlier, the seven instruments developed for the MLA 1999 project were the three achievement tests, namely, Life Skills, Literacy and Numeracy tests, and the four questionnaires, namely - Learner, Parent, Teacher and School Head questionnaires. These instruments were developed by delegates and resource persons from the participating countries over a period of more than a year. In order to support the process, a series of workshops [in Harare (3) Abidjan, and Rabat (2)] were held where training in item and instrument development as well as in data processing and analysis was provided through shared regional expertise.

In the process of developing the instruments, the Anglophone and Francophone sub-regions differed slightly in terms of the numbers of items, while country specific items were also accommodated (Appendix B: Tables 1&2). Nevertheless, the overall framework for the development of instruments in the Anglophone and the Francophone groups were validated and kept similar so as to enable direct comparisons between the two sets of data.

PILOT TESTS

The Pilot testing of instruments was conducted separately in the Francophone and Anglophone regions, but they shared similar features and procedures. In the former sub-region, the pilot tests were conducted in Morocco and Mali and in the latter sub-region in Malawi and South Africa.

In terms of format, both the Life Skills and Numeracy Tests comprised multiple choice items only. The Literacy Test was more varied in that it consisted of multiple choice items with three and four distracters, true/false questions, 'matching' questions, items that required a one word response as well as responses that required sentence construction.

Two regional resource centres were established to co-ordinate the Pilot phase of the MLA 1999 surveys in the Africa region, namely Morocco for the Francophone sub-region, and South Africa (the Human Sciences Research Council) for the Anglophone sub-region. The two resource centres were tasked to finalise all draft instruments, to develop a manual for managers of the MLA survey in the participating countries, to conduct an evaluative analysis of the pilot instruments, to make recommendations regarding the final form of each of the seven instruments to the working group co-ordinators, and to develop and distribute these final instruments to the participating countries.

SAMPLING FRAMEWORK

The aim of the MLA 1999 survey was to collect data from a sample of intact Grade 4 classes in each country. It was specified that the size of each Grade 4 class selected for the sample should comprise at least 30 learners. However, the following two situations had to be taken into account: (a) when the number of learners in a selected class was less than the required threshold level of 30, and (b) in cases of small schools where the total number of Grade 4 learners in a school was less than 30. For the former case, randomly selected learners from other classes were used to makeup for the shortfall while samples for the latter were accepted as they were. In addition to the learning achievement tests, learners, their parents, class teacher and school head were also requested to compiete the relevant questionnaires. Learner achievement scores could therefore be analytically linked to information on the broader pedagogical and social contexts of sampled learners.

TABLE 2-1 SAMPLE SIZE FOR EACH COUNTRY

Country	Pupil	Schools	Teachers	Parents
Botswana	5529	67	156	5540
Madagascar	3165	194	194	3165
Malawi	3283	137	203	4099
Mali	1365	68	67	1199
Mauritius	1800	60	133	1800
Morocco	4138	180	342	1728
Niger	1532	83	80	1119
Senegal	2223	123	123	2209
Tunisia	3649	138	138	3892
Uganda	8346	280	295	8311
Zambia	1761	74	72	1736
Total	**36791**	**1404**	**1803**	**34798**

SAMPLING PROCEDURES

All participating countries followed the same strategy for sampling that was jointly decided upon in Harare. A two stage stratified random sampling design, using intra cross correlation with rho=0.3 was employed to select schools for participation in the project. This design approach served as the basis for reporting data at the national as well as the regional or provincial level (Different terms which are used by participating countries include province, region or state). The sample was stratified by school location (e.g.: urban, semi-urban, rural), school type (e.g.: public or private), and school size (i.e.: based on the total number of learners enrolled in the school, e.g.: small = < 200 learners, medium = 200 to 400 learners, large = 400 to 600 learners and very large = > 600 learners). In addition, the sampling procedure ensured proportional representiveness with reference to national education sub-regions.

IMPLEMENTATION STRATEGIES

In each of the participating countries, national education ministries took responsibility for conducting their respective MLA project. Each country was responsible for sample selection, training of administrators, printing and administration of instruments as well as the coding and entry of all data. In most of the countries that participated in the 1999 project, the instruments were administered between August and October 1999.

The instruments were administered in accordance with jointly agreed procedures that were standardised across all the participating countries. Information on the procedures may be found in the "Project Administration Manual". An identity number system was developed to ensure that data from each of the instruments could be linked for analysis at a later stage. The battery of tests was carefully planned for completion within a two-day period.

DATA ANALYSIS

The reporting and analysis of the data were approached in accordance with the MLA guidelines developed by delegates from the participating countries. The first step involved the calculation of basic frequencies for describing variables and characteristics of the sampled populations. The second type of analysis involved the development of indices to describe and later to select the background variables that might influence the teaching and learning processes (e.g.: School Access Index). This analysis is presented in Chapter 4. The third type of analysis involved the construction of the coefficient of variance which provides information on learner performance. While taking into account within country disparities that are due to gender, school location and school type. Lastly, path analysis (using the LISREL program) was used to account for the factors that influence (direct, indirect and total causal effects) learner performance.

The achievement results in the Literacy, Numeracy and Life Skills tests were also analysed with reference to "mastery levels" that were set in each domain. Two broad mastery levels were set: the Minimum Mastery Level for learner achievement was set at 50% and the Desired Mastery Level was set between 70% to 80%, depending on the learning area and domain assessed (See Appendix B: Table 1). The analysis therefore entailed an examination of the percentage of learners who achieved the specified "Minimum" and "Desired" mastery levels per learning area and domain.

REPORTING

The Africa regional report is a first and unique attempt to provide a macro-level overview of MLA on the continental level in integrating the results from all the completed 1999 MLA surveys in the region. The development of the Africa report required standardisation of data between the regional data sets. (See Appendix B: Table 2). For the Literacy, Numeracy and Life Skills Tests the items for each domain were collapsed into a composite score that assured the comparability between the Anglophone and Francophone results. The development of a common framework for analysis by participants from both Anglophone and Francophone regions facilitated comparisons, and enabled the inclusion of all participating countries in a single regional report

Although only data from directly comparable items could be included in the present regional report, the information unique to each sub-region that was excluded at this level of analysis will be treated in greater detail in other forthcoming reports. In turn, the reports on MLA at the national level will also be more substantive than the sub-regional reports.

It must be stressed that the Africa regional framework is not meant to dictate the type of analysis that should be conducted and in no way preclude the authors of individual country reports from including supplementary and additional analyses.

Some of the completed 1999 MLA national survey reports (e.g. Madagascar, Senegal and Tunisia) point at such a direction. The MLA design allows each country to have specific layouts of the reports with reference to the presentation of the results. Countries could choose the particular features of the data sets for in depth-analysis as well as the construction of indicators for analysis and reporting. Thus the format of country reports are expected to differ in accordance with the unique sets of results and areas of concern of the country.

This report is based in part on the draft regional report presented at the All Africa EFA conference held in South Africa in December 1999, and includes comments and suggestions forwarded by various delegates as well as additions and revisions to the draft report.

CHAPTER 3
ASSESSING LEARNER PERFORMANCE: EQUITY - QUALITY TRADE-OFFS

A nation's capacity to provide an Education of Quality For All will depend more than ever upon its success in guaranteeing a defined and acceptable minimum learning experience for all its citizens, irrespective of their gender, regional, socio-economic and cultural differences or disparities. Providing universal access to basic education opportunities, and at the same time, assuring that the basic learning competencies of all learners are met still remains a dream for most African educational systems. These everlasting challenges are not always studied empirically. The human rights to a minimum quality of basic education for all in Africa remain the main concern of this chapter.

Attending school hardly means having an equal chance to learn and to succeed. The World Conference on Education for All held in Jomtien, Thailand, in March 1990, challenged the very notion of formal education, pedagogy and teaching and learning processes with a view to providing new perspectives on quality of education for all. More recently, a similar approach was used by the International Commission on Education for the Twenty-first Century "Learning: The Treasure Within" (Delors et al. 1996). Four pillars of Learning were introduced namely, Learning to know, Learning to do, Learning to live together, and Learning to be.

Africa has a unique and historical opportunity to raise its voice at the dawn of the 21st century with an assessment of the quality of education for all. Independent of the specific contexts of each participating country in the EFA 2000 Assessment's exercise, additional attempts are made here to critically examine several learner performance indicators. Rigid procedures have been designed and implemented as described in Chapter Two in order to ensure the comparability of the results from the 1999 Monitoring Learning Achievement (MLA) project. The learner performance profiles of the participating African countries are examined in the first section of this Chapter. The most salient feature of any single or composite indicator of African education development is the marked between- and within- country differences. This aspect is underestimated in most regional or comparative educational surveys and research studies. In order to ensure that both aspects of equity and quality of educational opportunities are assessed and reported, this section presents detailed profiles of learner performance across the region for the countries surveyed in 1999.

Hardly ever has any regional survey opened up the examination of 'learning achievement' so as to allow for a specific assessment of a minimum level of knowledge, skills and competencies of learners as compared to the desirable level to be reached by all using a criterion-referenced testing approach. The strength of the MLA survey resides in this approach which has been developed over time. Since 1992, pupils have been assessed in the three learning areas of Literacy, Numeracy and Life Skills. This approach is made operational through the measurement of a minimum level of mastery learning (MML) on the one hand, and the measurement of a desirable level of mastery learning (DML), on the other. In the second section of this chapter, MML and DML results of the countries are presented and discussed.

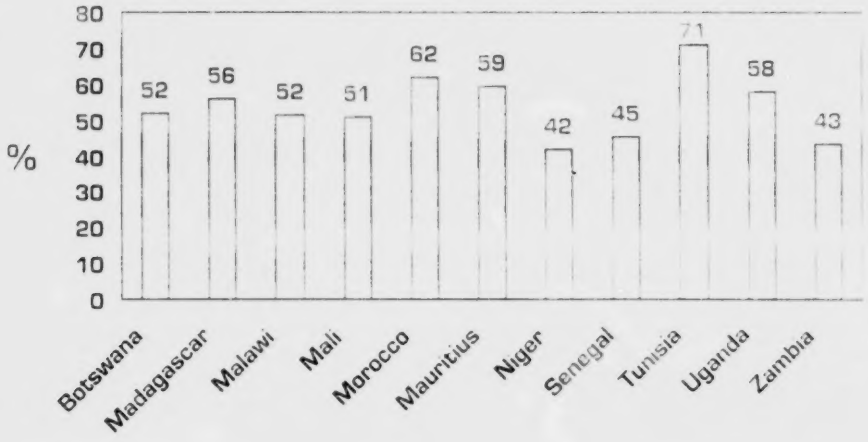
For the majority of African learners, many structural and personal factors work against access to an equal quality of education for all. In the third section of this Chapter, many more intensive between- and within-

country analyses are carried out to examine learner performance across gender (boys v/s girls), geographical (rural v/s urban), and school type (public v/s private) divisions. Finally, a short presentation of selected results from the previous MLA surveys (1993-1998) in the African region is given.

ACHIEVING QUALITY OF EDUCATION FOR ALL – LEARNER PERFORMANCE PROFILES ACROSS THE REGION

Most African countries started to invest heavily in their human resources immediately after their independence. Their major educational policies were, in the first place, oriented towards nation building of the "critical mass". These countries could not conceive of policy without an emphasis on the provision of equal educational opportunities for all. Despite tremendous efforts made since the 1960s, the inherited educational backlog of the majority of African countries has neither been adequately redressed, nor sufficiently improved in qualitative terms. Furthermore, equity-quality trade-offs have not yielded optimal results in most African educational systems. Comparisons of learning achievement across the African countries surveyed in 1999 may lead to a better understanding of how each country fared in improving student knowledge, skills and competencies after controlling for gender in terms of equity and redress, and for learning opportunities in terms of access. Since learners differ in many ways as individuals, at home, at school and in the community they belong to, the main tasks of the educational system and sub-systems are to adapt teaching and learning in order to meet these different needs and opportunities.

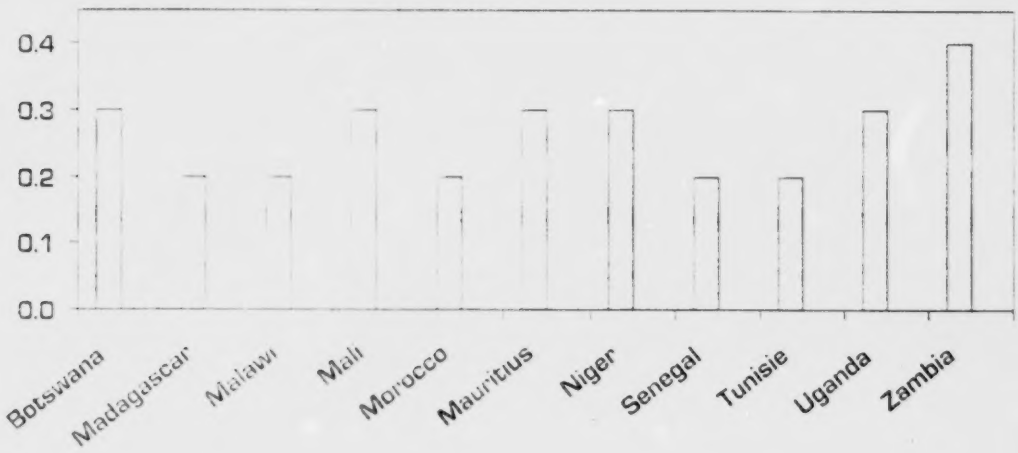
FIGURE 3-1: MEAN OF COMBINED LIFE SKILLS, LITERACY AND NUMERACY SCORES BY COUNTRY



The comparison of learner performance scores (a combined measure of the mean scores in Literacy, Numeracy and Life Skills) across the 11 countries shows how marked the between- country differences are (Figure 3.1). For instance, a between-country difference as large as 30 mean points in national scores is observed from the highest achieving country (Tunisia) to the lowest achieving country (Niger). However, having a higher national mean achievement score does not always guarantee improvement in the elimination of between- learner performance differences. Firstly, the results show that countries with higher mean scores do not always succeed in eliminating differences in learners' performance, as is the case in Mauritius and Uganda. Secondly, countries with the lowest performance profiles (Niger and Zambia) also have the highest differences in the performance of learners. The last group of countries are those portraying a picture which is rather mixed, notably showing high learning achievement profiles with low between-learner

performance differences in some countries, and low learning achievement profiles with high between-learner performance differences in other countries. The heterogeneity-homogeneity continuum of the surveyed African countries' with regards to learner performance profiles i.e., the between- and within- countries differences, can easily be examined from the results in Figure 3.2. We have used the coefficients of variation [1](CV) as a summary measure for this purpose , i.e. the lower the coefficients are, the more homogeneous the learner performance score distribution in the country. The higher the coefficients are, the more heterogeneous the learner performance score distribution in the country proves to be. This measure serves our purpose of assessing countries, and thereby ensuring their progress towards the twin goals of providing educational access and quality of learning for all. Two interesting profiles emerge from the analysis. Madagascar, Malawi, Morocco, Senegal and Tunisia have been relatively more successful in assuring equal access and higher quality of education for all than Botswana, Mali, Mauritius, Niger, Uganda and Zambia have been.

FIGURE 3-2: COEFFICIENT OF VARIATION BY COUNTRY



One major policy recommendation can be drawn from the above mentioned findings. Quality of education for all in Africa should no longer be a perpetual dream. It can be an attainable reality, provided that genuine efforts are made to address the problems of educational access in the light of the quality of education offered, and to successfully reduce observed between - and within - country differences in students' learning.

To what extent has Africa Realised the 1990 Jomtien Goals Towards Quality Education for all? A Regional Attempt

This section addresses the most pertinent concern of the Educational For All 2000 Assessment, namely how has the Jomtien Framework of Action for the World Declaration of Education for All been evaluated. Is there any available evidence to attest to this? The response to this question is a definite "yes", at least in the area of quality education for all, because the MLA (1992-1999) surveys are specifically designed to respond to Article 4 of the Jomtien Declaration as mentioned earlier. This Africa regional report is a direct outcome of the efforts and processes followed at regional, national and sub-national levels which, through intensive capacity-building mechanisms moves us towards the Jomtien imperatives for African learners and for African education as a whole. "With Africa For Africa" is not only the title of an interesting story to be

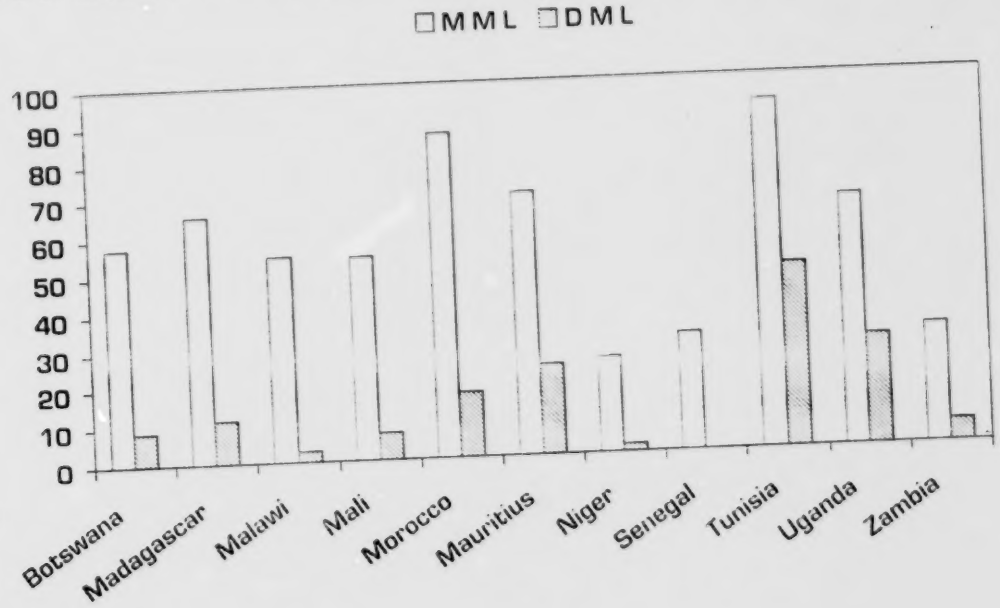
[1] The coefficient is calculated by dividing the standard deviation with the mean

told and heard, but it is also a reality that all MLA teams have lived with, are living with, and will live with in the future. The MLA movement can only grow because of its evident strengths: an emphasis on building, strengthening and sharing sustainable national capacities for a "critical mass" of expertise; its focus on the quality of learning for all within a learner-centred approach; and its action-oriented interventions in the areas of policy, curriculum, teaching, learning and assessment.

In the foregoing section, the MML and DML concepts were introduced and their measurement properties explained. Based upon the Jomtien principle that an agreed percentage of an appropriate age cohort of learners should attain or surpass a defined level of necessary learning achievement, the participating countries in the 1999 MLA survey in Africa have agreed on 50% of the correct scores for the minimum level of mastery learning (MML) and 70% and above of the correct scores for the desired level of mastery learning (DML). For the MML, it was suggested that at least 80% of the age cohort should reach that level to satisfy the target set at Jomtien in 1990.

"Mastery learning" as such, is neither a new concept nor a revolutionary one. Unfortunately, it has not been taken far enough beyond the theory and the rhetoric. MML and DML were hardly practised in Africa and were therefore not optimally used in order to guide intervention in areas such as: assessment, curriculum reforms and improvement in teaching and learning, just to mention a few of them. Within the generic framework of quality education for all, mastery learning should serve two purposes. First, it should guarantee quality learning over a life-time through continuous monitoring and corrective measures (the diagnostic-therapeutic continuum), and second, it should reach the often marginalised mass of learners who turn out to be forced "failures", "dropouts" and "pushouts" of the educational systems. The formation of elites is often achieved at the cost of the mass of learners. However, ensuring the minimum learning needs for all (MML) should be the first step towards excellence (DML). The MML and DML results of the combined tests of Literacy, Numeracy and Life Skills for the 1999 MLA surveys in 11 African countries are shown in Figure 3.3.

FIGURE 3-3: MINIMUM AND DESIRED LEVELS OF MASTERY LEARNING



Two countries (Morocco and Tunisia) have exceeded the Jomtien target, with 87 % and 93% respectively, while Niger, Senegal and Zambia have remained far behind it with only 26%, 31% and 32%, respectively. The remaining countries have achieved varied success in approaching the defined target, from 70% in Mauritius to 54% in Mali. An important question follows from these results. Can the same target be applied to markedly different countries? Should educational achievement be treated without due reference to achievement in other pertinent areas such as politics, history, economy, culture and demography? The DMLs' of the respective countries may provide us an indirect measure of how achievable this target can be if all the external and pedagogical conditions are optimally met. With the few exceptions of Tunisia, Morocco, Mauritius, Uganda and Madagascar, 9 out of 10 students surveyed in the participating countries have not yet reached the desired level of mastery learning.

TABLE 3-1: PERCENTAGE OF LEARNERS WHO ATTAINED THE MINIMUM (MML) AND DESIRED (DML) LEVELS OF MASTERY LEARNING

	Combined		Literacy		Numeracy		Life Skills	
	MML	DML	M.M.L	D.M.L	M.M.L	D.M.L	M.M.L	D.M.L
Botswana	57.8	8.7	46.2	6	55.4	5.4	71.8	14.9
Madagascar	66.1	11.7	56.9	20.5	34.4	5.6	97.3	60.3
Malawi	54.9	3.0	15.3	1.4	30.7	1.4	95.4	69.4
Mali	54.4	7.3	60.4	13.1	37.9	6.2	69.8	23.7
Mauritius	70.3	24.1	75.5	35.4	69.4	26.4	69.9	32.4
Morocco	86.6	17.2	85.9	45.5	63.6	25.5	72.2	23.1
Niger	25.6	2.0	39.3	3.6	15.3	5.7	44.9	7.0
Senegal	31.2	2.0	45.6	6.7	22.9	3.0	36.3	7.0
Tunisia	92.6	49.2	95.1	70.3	31.6	33.0	95.1	56.7
Uganda	54.4	14.4	64.3	23.3	41.9	10.2	78.8	51.1
Zambia	31.9	5.6	37.8	7.3	19.9	4.4	49.0	26.1

The MMLs and DMLs of the 11 countries across the three learning areas, Life Skills, Literacy and Numeracy are presented in Table 3.1. The situation becomes more complex at this level as it reveals certain concrete interventions that are specific to the learning areas and not to the global learning achievement trends observed earlier. In Life Skills, Madagascar, Malawi, and Tunisia met the Jomtien target, in Literacy only Morocco and Tunisia, whereas in Numeracy none of the 11 countries met the target. The DMLs of the different learning areas show that only in very few cases have half of the students attained the desired level.

Reaching an acceptable quality of education for all, the Jomtien target for minimum mastery level - is not an impossible task in Africa. The evidence shows that some countries in this survey have even gone beyond that target, and others are coming closer, while a few still have a long way to go. Much more improvement will be needed in both Literacy and Numeracy. In the latter learning area, not a single country has reached the Jomtien target. Without improving and sustaining a minimum level of mastery learning in all the learning areas at all Grades, Africa's education system may continue producing elites (1 out of 10 students). Unfortunately, it will at the same time continue reproducing a massive number of "failures", "dropouts" and "pushouts".

How does Learner Performance Differ Across Countries?

To date, there is not a single comparative study of basic education in Africa which during one and the

same year simultaneously assesses learner performance from the viewpoint of what is taught and learnt in and out-of schools. It has been mentioned earlier that the MLA surveys were intended to complement other assessment methods, but not to replace them. For this very reason, basic learning competency levels were established for the three learning areas, i.e. Literacy, Numeracy and Life Skills and a criterion-referenced approach was used. It should be noted, however, that the 1992-1998 MLA Surveys were based on country-specific items (see discussion at the end of this chapter) while the 1999 MLA African surveys have both common-core and country-specific instruments. Pilot-testing, standardisation and normalisation procedures were fully exploited to assure the comparability of the test items for data analysis and report-writing (See Chapter Two and Appendix B, Tables 1 and 2).

The experience from earlier MLA surveys in some 15 developing and developed countries during the period 1992-1998 showed one major consistent pattern of learner performance across these three different learning areas, namely that students' performance in Life Skills was much higher than their performance in Literacy and in Numeracy despite historical, socio-economic, cultural and educational differences between the participating countries. Detailed results are given in Appendix C.

As a next step in the analytical approach, it was expected that some common as well as some specific patterns will be observed across the different learning areas in the 11 African countries surveyed. The information may lend to the improvement of assessment practices, teaching-learning processes and curriculum development through focussing on the unique and complementary patterns in the findings for the three different learning areas. The results are shown in Table 3.2. Firstly, the highest mean achievement scores in the

TABLE 3-2: TOTAL MEAN SCORE FOR THE LIFE SKILLS, LITERACY AND NUMERACY TESTS

	Life skills		Literacy		Numeracy	
	Mean	SD	Mean	SD	Mean	SD
Botswana	56.0	15.0	48.0	15.0	51.0	15.0
Madagascar	72.1	10.3	54.7	21.2	43.7	17.4
Malawi	77.0	14.0	35.0	14.0	43.0	14.0
Mali	56.9	19.1	51.8	19.4	43.6	16.8
Morocco	62.3	16.2	67.6	15.5	56.4	18.9
Mauritius	58.0	20.0	51.0	21.0	58.5	19.2
Niger	47.7	17.6	41.1	18.9	37.3	15.8
Senegal	46.7	16.2	48.9	18.1	39.7	15.6
Tunisia	74.7	13.4	77.9	15.1	60.4	18.4
Uganda	66.8	20.3	58.7	17.6	49.3	18.1
Zambia	51.0	23.0	43.0	18.0	36.0	17.0

three learning areas are 77, 78 and 60 for Life Skills, Literacy and Numeracy, while the lowest ones are 47, 35 and 36 respectively. Secondly, in the majority of countries the student performance scores are the lowest in Numeracy as compared to their scores in Life Skills and Literacy. Comparisons of the highest and lowest mean achievement scores across the three learning areas show a 29 mean-point score difference in Life Skills (between Malawi the highest, and Senegal the lowest); a 43 mean-point score difference in Literacy (Tunisia being the highest, and Malawi being the lowest), and a 24 mean-point score difference in Numeracy (Tunisia being the highest, and Zambia being the lowest). It is worth noting that the relatively big differences across countries in Literacy are accounted for by the medium of instruction and learning among other factors. Countries whose learners have their mother tongue as medium of instruction and learning, namely Tunisia, Morocco and Madagascar, outperformed the others in most learning areas. Mauritius, the overall fourth performing country is an exception to the rule where instruction and learning take place in two foreign languages simultaneously namely, English and French.

A closer look at the within-country learner performance profiles in the three different learning areas shows more complex, but revealing patterns. The three highest achieving countries (Tunisia, Morocco and Mauritius) do not always perform at equally high levels in all three learning areas. A similar concern exists for the profiles of the three lowest achieving countries (Niger, Senegal and Zambia) which also reveal fluctuations in performance across the learning areas. A controversial picture is found among the remaining five countries. Nearly all countries have a high between learner performance difference in Numeracy and Literacy, while nearly half of them have much lower differences in Life Skills. In the latter case, the results of the previous MLA surveys are confirmed. There are smaller differences between learners from the different countries in terms of their performance in the Life Skills learning area than in the Numeracy and Literacy learning areas. These salient features from the regional analysis further support reservations concerning rigid across-the-board applications of education policy "solutions" undertaken in Africa. Unfortunately, this policy rigidity continues to persist through support from both external and internal educational role players.

The inconsistent patterns of learner performance observed across the countries and between the three different learning areas point at one constant. This statement should be supported by the results of the path analysis in Chapter Five. More attention should be given to curriculum planning, teacher education and training, and textbook development to identify only a few areas for intervention. Teaching and learning outcomes are not only influenced by the specificity of a particular country, its teachers and learners, but equally by the specific characteristics of each and every learning area.

How Learner Performance Differs Across Each Learning Domain in the Different Countries

Further analyses of the learner performance profiles are needed in order to provide guidelines for teaching and curriculum development in the specific learning areas. The MLA Surveys have serious concerns about the role of examinations in failing and passing students without proper diagnosis of their different capacities and weaknesses. For this reason, since 1992 considerable emphasis has been given to the development of domains of learning in order to generate more holistic and comprehensive assessment procedures. A number of actors in every country were called upon to develop, pre-test and validate a whole battery of test items for every domain in each learning area. Consequently, following a criterion-referenced approach as mentioned earlier, specific items were developed to measure every domain as one single unit of mastery learning. This process was based on the principle that most pupils should know at least 50% (MML) or 70% and above (DML) of the content in each domain (the strict minimum at a given grade and time for every learning area). Life Skills consisted of three learning domains - Health, Civics and Environment, Science and Technology; Literacy of four learning domains -Vocabulary, Reading Comprehension, Grammar, and Writing; and Numeracy of three learning domains - Numbers, Measurement, and Geometry. The definitions, properties and procedures for constructing the domains have been already elaborated on in Chapter 2 and more detailed information is given in Appendix B, Tables 1 and 2.

TABLE 3-3: LEARNER PERFORMANCE PROFILES BY COUNTRY AND BY LEARNING DOMAIN

	Mean per domain									
	Literacy				Numeracy			Life Skills		
	Vocabulary	Comprehension	Grammar	Writing	Numbers	Measurement	Geometry	Health	Civics & Environ	Science & Technology
Botswana	70.0	53.0	49.0	27.0	53.0	39.0	54.0	54.0	69.0	49.0
Madagascar	53.0	72.0	48.0	56.0	49.0	32.0	43.0	80.0	72.0	76.0
Malawi	54.0	37.0	35.0	23.0	42.0	43.0	47.0	78.0	80.0	70.0
Mali	85.0	57.0	43.5	45.3	34.1	49.9	48.3	56.2	58.1	55.6
Mauritius	86.0	68.0	57.0	49.0	61.0	51.7	61.1	56.0	66.0	55.0
Morocco	76.9	98.7	65.8	57.9	47.2	55.6	70.6	61.6	65.3	56.8
Niger	80.6	50.5	43.2	32.7	35.9	42.6	45.8	46.2	48.7	48.5
Senegal	75.2	48.4	48.7	36.1	28.9	39.4	38.4	47.6	48.4	40.6
Tunisia	74.5	81.4	76.4	77.8	63.3	54.8	70.3	70.2	79.6	72.1
Uganda	80.0	62.0	59.0	47.0	48.7	47.6	52.6	68.4	66.3	64.0
Zambia	72.0	45.0	49.0	28.0	36.0	35.0	37.0	52.0	52.0	48.0

A detail analysis of the learner performance profiles across the 11 countries should offer more appropriate yardsticks for educational decision-making, implementation strategies and corrective measures for the assurance of quality education for all. The more specific the results, the more relevant the observations and recommendations for actions become. The results in Tables 3.3 can be used for this end. We have chosen to report only the major policy-relevant trends here. Firstly, students from the different countries performed consistently high or low in specific domains for given learning areas. In Life Skills, higher performances are recorded in the Civics/Environment domain; in Literacy the Vocabulary domain is higher; and in Numeracy, the Geometry domain reflects a higher performance. A similar trend appears of lower performance for Science and Technology in the Life Skills learning area,

for Written expression in Literacy, and for Measurement in Numeracy. Secondly, the between-country comparisons of the highest and lowest mean achievement in given domains of the same learning area

TABLE 3-4: LEARNING IMPROVEMENT INDICES BY COUNTRY AND BY LEARNING DOMAIN

	Coefficient of variance for each domain									
	Literacy				Numeracy			Life skills		
	Vocabulary	Comprehension	Grammar	Writing	Numbers	Measurement	Geometry	Health	Civics & Environ	Science and Technology
Botswana	0.39	0.32	0.65	0.67	0.32	0.46	0.41	0.31	0.35	0.47
Madagascar	0.66	0.35	0.54	0.43	0.41	0.75	0.47	0.18	0.19	0.25
Malawi	0.52	0.46	0.66	0.91	0.38	0.49	0.57	0.22	0.21	0.29
Mali	0.20	0.42	0.59	0.57	0.57	0.49	0.48	0.45	0.36	0.41
Mauritius	0.28	0.28	0.49	0.57	0.35	0.43	0.40	0.38	0.42	0.45
Morocco	0.38	0.04	0.34	0.42	0.47	0.45	0.31	0.33	0.26	0.39
Niger	0.34	0.51	0.78	0.66	0.51	0.60	0.54	0.47	0.39	0.49
Senegal	0.42	0.46	0.67	0.67	0.50	0.54	0.61	0.39	0.41	0.54
Tunisia	0.36	0.19	0.29	0.23	0.34	0.44	0.34	0.23	0.19	0.28
Uganda	0.31	0.32	0.49	0.58	0.41	0.47	0.46	0.34	0.38	0.38
Zambia	0.42	0.44	0.65	0.89	0.53	0.57	0.68	0.50	0.52	0.52

showed marked differences between the countries. In Life Skills, for example, the highest mean achievement score (80) was found in the Civics/Environment domain for Malawi and the lowest one (40) i.e. half as much, in the domain of Science and Technology for Senegal. In Literacy the highest mean achievement score was found in Reading Comprehension for Morocco (98) and the lowest in Grammar for Malawi (23); and in Numeracy, the highest mean achievement score was observed in Geometry (71) for Morocco and the lowest score, in Measurement for Madagascar (32).

Needless to say, there is much more to report on this regional analysis, but the aim is to allow countries to understand where their strengths and weaknesses are in the attainment of quality learning for all by using such benchmark measures. Other important features of the learner performance profiles in the different domains are presented in Table 3.4. The results show that there are very high between-student variations at the domain level. These point to the fact that quality education for all can only be ensured on the condition that educational role-players can properly understand the dynamics of the teaching-processes where learners remain at the centre as a target for any interventions, be it at the curriculum, teaching, and learning environment level. The evidence shows that not a single country has been successful in maintaining the expected balance in the trade-off between equality of educational opportunities and quality learning at the level of the domains. The following example serves to illustrate the point. In Morocco the coefficient varies from 0.04 in a given domain (Reading Comprehension) to a coefficient of 0.47 in an another domain (Numbers). In Madagascar the coefficient varies from 0.18 in the Health domain to a coefficient of 0.75 in the Measurement domain.

Educational surveys of the MLA type can produce very crucial information and empirical evidence for the better of the humankind. In some of the Eastern and Southern African countries, a special emphasis on HIV/AIDS was given in the 1999 MLA survey. It formed one of the domains in the Life Skills Test. Box 3. 1 provides the information on HIV/AIDS from this survey.

The empirical evidence obtained from this regional 1999 MLA survey for Africa offers serious challenges to contemporary pedagogy, learning and education, as a whole. It addresses serious concerns about the state of comparative educational research and studies. For the sake of our learners, systematic and continuous learning assessment schemes are needed in most educational systems at all grades and educational levels, in order to capture - and meet - their varying needs and difficulties in all the learning areas and domains. Failing or passing our children does not justify what is learnt and what is not learnt. There is a need to understand the dynamics in teaching and learning so as to establish what and how each of our learners must be better taught so that she/he can learn to optimise and not minimise her/his learning potential and attributes.

BOX 3.1 KNOWLEDGE OF HIV/AIDS TRANSMISSION AND PREVENTION BEHAVIOUR

Information on how HIV/AIDS is spread and prevented is critical for any learner in Africa. The Life Skills tests posed several questions to ascertain knowledge about how HIV/AIDS is contracted, how it is spread and sexually related behaviours, which are linked to the prevention of HIV/AIDS. While the table above indicates that the highest awareness is in Malawi and Uganda, and the lowest awareness is in Zambia and Botswana, it is evident that a significant percentage of learners still do not have

MEAN PERCENTAGE SCORE FOR LEARNERS REGARDING THEIR KNOWLEDGE OF THE SPREAD AND PREVENTION OF HIV AIDS.

Country	Knowledge Mean (%)	S.D.	HIV Prevalence (%) 15 - 49 year olds
Botswana	42.3	21.1	25.1
Malawi	72.8	32.4	14.9
Mauritius	53.4	28.2	0.1
Uganda	65.6	29.9	9.5
Zambia	47.2	31.1	19.1

information they need regarding the issue of HIV/AIDS.

A high percentage of learners were aware that HIV/AIDS could be contracted through exposure to the blood of another person. It is, however, still disturbing that a substantial percentage did not know this (i.e. Botswana 31%, Malawi - 30%, Mauritius - 49%, Uganda - 36% and Zambia 45%). Regarding learners' knowledge about how HIV/AIDS is spread, only 17% in Botswana, 75% in Malawi, 46% in Mauritius, 69% in Uganda and 45% in Zambia indicated that they were aware that HIV/AIDS could be spread through the sharing of needles. The results indicate that there is a great need for HIV/AIDS education among learners. Additional research will certainly provide more comprehensive information about learners' knowledge of HIV/AIDS, how it is spread and how it can be prevented.

Success in striking the optimal balance between equity and quality education for all is often obscured under the quantitative number-game agenda that perpetuates educational inequalities. Educational systems can either breach or reinforce these inequalities. From the Jomtien perspective, the assessment of learning achievement across gender, regional and school environments is more a human right and a necessity than simply a need for stock-taking. The previous sections provided us with a clear-cut picture of the regional between- and within- country differences in learning achievement, followed by an

outline of learning achievement in the different learning areas and learning domains. Attempts were made to provide some empirical evidence so as to answer questions about how to use regional analyses to address concerns and interests and to point towards country-specific educational policies and strategies to meet the needs of African learners. In the present section, we shall move a step further towards the sources and causes of good or poor quality of education for all. It should be noted that to date several 1999 MLA surveys (e.g. Angola, Burkina Faso, Cameroon, Comoros, Cote d'Ivoire, South Africa, and The Gambia) are still in the phases of data analysis and reporting. Similarly, all available MLA 1999 survey data on personal, socio-economic, linguistic, and cultural background of learners are not presented here for two reasons. Firstly, this regional report is just the beginning of a long-term process of data collection, analysis and report- writing. Secondly, the background characteristics, processes and learning environments as well as their impacts on learner performance need some further analysis beyond those to be presented and discussed in the next chapter. Lastly, it is expected that greater detail will be included in the national and sub-regional MLA reports.

Gender Disparities in Learning Achievement

Many surveys of learning achievement have demonstrated over the years that girls outperform boys at lower grades while boys outperform girls at the upper grades. Girls usually excel in Literacy while boys do better in Numeracy. Being a successful learner, a girl may bring tremendous benefits to herself, her family, and society in the various areas of education, economy, health and human development as a whole.

The main results of the gender analyses of the 1999 MLA survey data are presented in Table 3.5 while

TABLE 3-5: GENDER DIFFERENCES IN LEARNER PERFORMANCE

	Difference in overall mean score per country			
	Boys	Girls	DIF	Sig
Botswana	46.8	50.8	4.0	0.0
Madagascar	55.7	56.3	-0.6	0.2
Malawi	53.2	49.9	3.3	0.0
Mali	52.2	49.4	2.8	0.0
Mauritius	58.0	60.6	-2.6	0.0
Morocco	62.0	62.1	-0.1	0.8
Niger	41.4	42.6	-1.2	0.2
Senegal	45.5	44.8	0.7	0.1
Tunisia	71.2	71.2	0.0	1.0
Uganda	59.9	59.3	0.6	0.2
Zambia	40.7	41.4	-0.7	0.2

the detailed ones are given in Appendix C. The general trends emerging from the detailed results show that Tunisia consistently stands out as the highest achiever with 71% for girls and boys respectively. The lowest mean achievement scores only vary between countries and between girls and boys, e.g. 43% and 41% in Niger on the global scores; 47% for both girls and boys in Life Skills in Senegal; 34 % and 35% in Literacy in Malawi; and finally 38% and 37% in Numeracy, in Niger. It is important to note that the gender differences are either small or non-significant, while comparisons of the between-country differences show as large as 37 mean score differences. In 4 out of 8 countries boys do slightly better than girls on the overall results. Statistically significant gender differences were found

for boys in Botswana, Malawi and Mali and for girls in Mauritius.

A closer look at the between-country observations of gender differences across the three learning areas, shows that gender parity in learner performance in the lower grades of African basic education is more present than ever (see Appendix C). Statistically significant gender differences with mean score point differences of 2 and above are in favour of girls in all three learning areas in Botswana, and in Mauritius and Tunisia for Literacy. In the case of boys, the same trend is observed for all three learning areas in Malawi; in Literacy in Uganda and Tunisia; and for Numeracy in Uganda.

Pointers and recommendations for gender parity in quality basic education for all in Africa are many as evidenced through the 1999 MLA survey results. Gender parity in learner performance at the lower grades of basic education is an achievable goal. Gender differences are statistically non-significant in the majority of the reported observations across countries and by learning areas. One of the greatest challenges for girls and the education of women in 21st century Africa are the actions required to replace the theoretical vision of gender parity for all types and forms of education. This will represent an everlasting value added to African education and to humankind as a whole.

Urban-Rural Disparities in Learner Performance

Several decades of school survey research studies in the developing world have constantly confirmed the fact that the school as an institution has helped to reproduce and reinforce regional inequalities in learner performances as a result of general inequalities (economic, social, cultural, demographic and linguistic) between- and within- regions. The 1999 MLA surveys have data by regions/provinces/districts and four regional strata (urban, semi-urban, rural and rural remote) for most participating countries. Countries were advised to prepare and to present their national reports in accordance with this common stratification principle where appropriate. The urban-rural dichotomy was choosen instead of a continuum for this regional analysis as the reduction of between-country rural-urban disparities is a precondition for reducing within urban and within rural disparities.

TABLE 3-6: RURAL-URBAN DISPARITIES IN STUDENT LEARNING

	Difference in overall mean score per country			
	Urban	Rural	DIF	Sig
Botswana	49.8	47.4	2.4	0.00
Madagascar	62.8	54.0	8.8	0.00
Malawi	53.2	51.1	2.1	0.00
Mali	54.3	47.8	6.5	0.00
Mauritius	62.8	57.2	5.6	0.00
Morocco	64.2	60.1	4.1	0.00
Niger	42.8	41.7	1.2	0.01
Senegal	46.6	44.0	2.6	0.00
Tunisia	73.1	65.6	7.6	0.00
Uganda	59.9	59.4	0.5	0.17
Zambia	45.3	37.8	7.4	0.00

As it is often argued, the urban learning environment, e.g. a literate milieu with greater access to social, cultural and economic facilities and services, produces a high performing learner while in the

rural situation, a 'poor' performing learner. In developing this nurture-nature debate, the 1999 MLA surveys may have their own stories to tell. Table 3.6 summarises the extent to which learner performances differ between urban and rural areas of the 11 African countries. One major finding from the detailed results (refer to Appendix C) is that the observed gender disparity patterns are often reproduced in the urban-rural disparities across these countries. However, urban school children outperformed rural school children overall and in all learning areas. In only 6 out of the 33 valid observations, the urban-rural differences are statistically non-significant. The predominantly rural African countries, showed how far and distant is the realisation of urban-rural parity vis-à-vis quality education for all.

Urban-rural parity in learner performance must remain a top-priority policy intervention in all countries surveyed. It would not only enhance parity, but would also create the value that is added in order to successfully reduce, among other things the existing gender and socio-economic inequalities among Africa's present children, future youth and parents. Revitalising Africa's education hopes must go hand in hand with appropriate corrective measures for redressing urban-rural disparities in learner performance, while simultaneously boosting education growth in both quantitative and qualitative terms. This should serve as an open agenda for action at national, regional and international educational policy-making levels. Otherwise, Jomtien 1990's goal for quality education for all will leave Africa before it has even arrived on the continent.

Disparities in Learner performance by Type of School

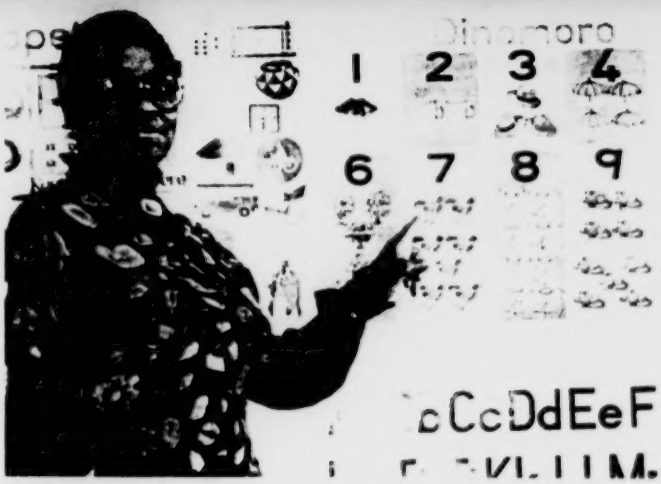
Despite the variety of definitions of what makes a school public or private and of what makes education a free or a paid service; the most common categorisation still used is public versus private. In some countries, however, public school children have some fees to pay and private schools are partially or heavily state-subsidised. A striking feature of the public-private school difference is that it reflects rather accurately the socio-economic status difference of the two student population groups. Emphasis on academic excellence, stringent disciplinary behaviours, management leadership and style, among other things, are what makes the two types of schools more or less effective in terms of learner performance.

TABLE 3-7: DISPARITIES IN LEARNER PERFORMANCE BY TYPE OF SCHOOL

	Difference in overall mean score per country			
	Public	**Private**	**DIF**	**Sig**
Botswana	48.3	72.4	-24.1	0.0
Madagascar	53.6	61.9	-8.3	0.0
Malawi	51.3	57.5	-6.2	0.0
Mali	49.5	53.4	-3.9	0.0
Mauritius	59.8	56.6	3.2	0.0
Morocco	61.3	67.0	-5.7	0.0
Senegal	44.6	50.2	-5.6	0.0
Uganda	58.6	69.6	-11.0	0.0
Zambia	40.5	57.4	-16.9	0.0

The detailed results of the regional analysis of learner performance by type of school (public and private) are presented in Table 3.7 and in Appendix C. It should be noted that in both Niger and Tunisia, private schools were not sampled in the1999 MLA surveys. In the majority of the 1999 MLA surveys in

Africa, private-public differences in learner performance are statistically significant. Botswana private schools have three of the four highest mean achievement scores (72, 82, 75) for the overall three learning areas, Literacy, Life Skills and Numeracy respectively. The highest score in Malawi private schools (81) is in Life Skills. Senegal public schools has three out of the four lowest mean achievement scores (45, 47, and 38 for the overall three learning areas, Life Skills and Numeracy respectively) while Malawi public schools had the lowest (34) in Literacy. Taken as a whole a very high mean difference of the size of 24 points separates the lowest achievers from the highest achievers. The only exception to the rule is Mauritius where public school children outperformed private school children overall and in all three learning areas. The same trend was observed in the 1994 MLA survey in Mauritius, half a decade ago.



The adaptation of schools to children instead of children to schools, is an indisputable challenge of quality education for all which needs to be re-addressed and further emphasised by educational planners and front-line educational agents of change and innovation. School effectiveness may not always need as many additional economic resources as compared to the different soft resources - such as discipline, working in a reinforcing collective milieu, partnership and commitment to guarantee excellence, and conducive managerial leadership - which can boost learning. Private schools often have the advantage of having both the additional economic resources and the soft resources. Learning from what makes schools more effective may serve to reduce learning achievement differences observed between learner attending public schools and learners attending private schools.

THE 1992-1998 MONITORING LEARNING ACHIEVEMENT (MLA) SURVEYS IN AFRICA: REPEATED LESSONS TO BE RE-LEARNT

This Joint UNESCO-UNICEF International MLA Project has been successfully implemented in 15 developing and developed countries across the globe during the period 1992-1998. All of them were national surveys with country-specific design, instrumentation and analyses. The majority of these countries have published their national reports and have had broad-based consultations, seminars and workshops for integrating the experience learnt into concrete reforms and changes in policy, curriculum, teaching, and teaching-learning processes. Having started with five pilot countries in 1992 (China, Jordan, Mali, Mauritius and Morocco) the MLA project is now a movement with a national critical mass constantly empowered through different capacity building modalities in order to institutionalise a monitoring system for quality improvement in education. In its second phase, the MLA project proposed to each participating country a global framework for action. The Handbook "Monitoring Learning Achievement - Towards Capacity Building " (Chinapah, UNESCO 1997) based upon the experience and lessons from these first five pilot countries has been produced, printed and disseminated across the world.

The second MLA group consists of 12 additional countries. They are: Haiti, Lebanon, Kuwait, Mozambique, Nigeria, Oman, Rodrigues Island of Mauritius, Sao Tome and Principe, Slovakia, Sri-Lanka, Sudan, and Tanza-

nia (Zanzibar). Several lessons can be drawn from the experience accrued during this period. Many countries have chosen to benefit from the MLA global framework and its country-specific approach. In several cases, such surveys focus on a specific grade (e.g. Grade I in Slovakia) or on different grades over a period of time (e.g. China, Jordan, Kuwait, Lebanon, Mozambique, Morocco, Oman, Slovakia and Sri Lanka). The end-result makes the monitoring of the quality of education into a flexible and continuous process. Thus, it could be said that those countries using basic learning competencies were acting within the spirit of the mandate of the Jomtien resolution which requires each nation to set levels of learning competence and devise mechanisms for monitoring the attainment of these levels.

The national ownership of the MLA project became an important element of further capacity building, strengthening and sharing. It also became a "think-tank" mechanism for national, regional and international networking and mobilisation of available human resource expertise to keep the movement a sustainable one. As an illustration, the present Africa regional MLA report is entirely prepared by a pool of African resource persons under the guidance and support of UNESCO and UNICEF.

To conclude this chapter, we have selected the major trends from the 1992-1998 MLA national surveys in the Africa region to complement the results presented and discussed in the foregoing sections. Six African MLA surveys were carried during this period: Mali (1994), Mauritius (1993), Morocco (1993), Nigeria (1995), Mozambique (1995) and Sao Tome and Principe (1997). The detailed results have been reported in the respective national reports and often used in the MLA global reports and working documents for capacity-building workshops.

TABLE 3-8: 1993-1998 MLA COUNTRIES. SOME SELECTED RESULTS

MEAN SCORE DIFFERENCE	NUMERACY			LITERACY			LIFE SKILLS		
	Urban/ Rural	Girl/ Boy	Private/ Public	Urban/ Rural	Girl/ Boy	Private/ Public	Urban/ Rural	Girl/ Boy	Private/ Public
Mali	2.3	-1.7	4.1	3.6	-0.1	1.0	3.2	0.9	-0.4
Mauritius	11.6	1.1	13.7	11.8	3.1	15.2	3.2	-0.8	-9.8
Morocco	13.6	1.4	19.8	18.4	-2.8	19.3	15.4	5.0	13.2
Nigeria	-4.7	0.5	13.3	5.9	1.1	17.6	-4.0	0.2	12.5
Mozambique	0.7	-4.5	-	3.5	0.8	-	-1.1	-1.1	-
Sao Tome & Principe	3.0	1.1	-	12.7	3.3	-	2.97	4.5	-

A summary of some selected results from the 6 African MLA surveys conducted during the period 1992-1998 is given in Table 3.8. The disparities in learner performance between boys and girls, between urban and rural schools, and between public and private schools followed the same patterns as the ones observed later in the 1999 MLA African surveys. Girls perform equally well as boys and the differences are in most cases statistically non-significant. Statistically significant differences were observed between urban and rural students and between learners attending private schools and learners attending public schools. The between-country differences across the learning areas show the following trends: (1) the differences are consistently the highest for the private as opposed to public school children, e.g. as high as 15 and above mean-score point differences observed in Mauritius, Morocco and Nigeria; (2) children tend to be less discriminated due to their gender, school location and school type in their performance in Life Skills than in their performance in Literacy or Numerically, e.g. the largest discrepancies are found in Mauritius and Morocco and the lowest ones in Mali;

and (3) from an equity-quality trade-off, both Mauritius and Morocco which have relatively higher levels of achievement as compared to other countries still require much effort to redress the large between learner differences due to gender, school location and school type. These tendencies confirm the results and explanations provided in the previous sections.

EFA 2000 Assessment is turning into a movement, as has been the case of the MLA for some years now. In this chapter, the major between- and within- country differences in learner performance were reported, assessed and discussed in the light of quality education for all and more specifically, the Jomtien goal for countries to attain or surpass a defined level of learning achievement. Knowing the differences is a first step towards knowing the root-causes of such differences. This will be the purpose of the next chapter in which the environments of teaching and learning in the 1999 MLA surveys in Africa will be described and critically examined.

It is important to recognise two other initiatives within the African region, which are also using the survey design methodology to monitor learning achievement. These are the Southern African Consortium for Monitoring Educational Quality (SACMEQ) and Program d'Analyse des Systemes Educatifs des pays de la CONFEMEN (PASEC). The first started in 1993 to focus on the inputs into the educational system and also the reading achievement of pupils of the upper primary school level. It has grown into a fifteen-member organisation covering countries in both Southern and Eastern Africa. It has also expanded its assessment programme to include primary Grade 6 and assessment of English and Mathematics. The second, which is an initiative of some Francophone countries, started its operations in 1993. Its main objectives are to carry out assessment of the level of achievement of pupils in their second and fifth year of primary school in Mathematics and French. There are nine participating countries.

CHAPTER 4
TEACHING AND LEARNING CONDITIONS

In this chapter, the teaching and learning conditions at home and in school of the learners surveyed are presented and discussed with a view of ascertaining the influence on learning achievement (see Chapter 5). Data are gathered from the following survey instruments: the Learner Questionnaire, the Parent Questionnaire, the Teacher Questionnaire and the School Head Questionnaire. All four questionnaires elicit information on both background characteristics of the targeted groups and on the environmental conditions for the teaching and learning processes.

The results are presented either in the form of percentages or in the form of "index scores" that were specifically constructed from the set of variables derived from these questionnaires. The process entailed first selecting a set of variables that could be grouped conceptually. Then values were carefully allocated to each of the set of variables in such a way that a composite indicator could be produced. The process of construction of each indicator is explained in Appendix A.

LEARNER BACKGROUND

There are generally acceptable ***gender*** balances among learners from most of the participating countries (Table 4-1), the exceptions being Senegal and Mali with markedly higher enrolment among male learners.

The ***learner age*** of six years is the generally accepted standard for first year school enrolment in most African countries. Based on this starting age and assuming that a learner does not lose years through repetition, she/he could be expected to be aged nine years in Grade 4. With the exception of Mauritius (mean age 8.7 years) the entire learner sampled is on average ten years or older in Grade 4 (Table 4-1). The Botswana sample has a mean learner age of as high as 13.5 years which is unusual. A further analysis of the data from Botswana may be needed in the national report.

A striking feature of most African educational systems is that the quality of the education offered is strongly determined by the status and nature of the language policy and practice within the country. A critical factor in the progress of learners is the degree to which the ***home language*** is the same as the language of instruction at school. In instances where the home language is the same as the language of instruction, learning is reinforced directly. The learner can freely communicate what she/he has learnt at school, in the home environment and her/his learning is more likely to be directly reinforced through interaction with all members of the family. Teaching and learning in the mother tongue of most learners is a rare educational phenomenon in Africa. As shown in Table 4-1, very few children have either English or French as their home language which is the medium of instruction and examination for the majority of learners, either all throughout or at higher grades of their schooling. The proportion of homes where the language of instruction (English or French) is the same as the home language is highest in Zambia and in Senegal. This in effect

means that for all the countries participating, the overwhelming majority of learners between 75% and 90% have to learn in a language other than their home language. It must be noted, however, that while the language of instruction and home language in Morocco and Tunisia is Arabic, the table only presents information on whether French is spoken at home in these two countries.

TABLE 4-1:GENDER, MEAN AGE, HOME LANGUAGE, ATTENDANCE AT PRE-SCHOOL CLASSES & PARTICIPATION IN SCHOOL SPORT AND CULTURAL ACTIVITIES

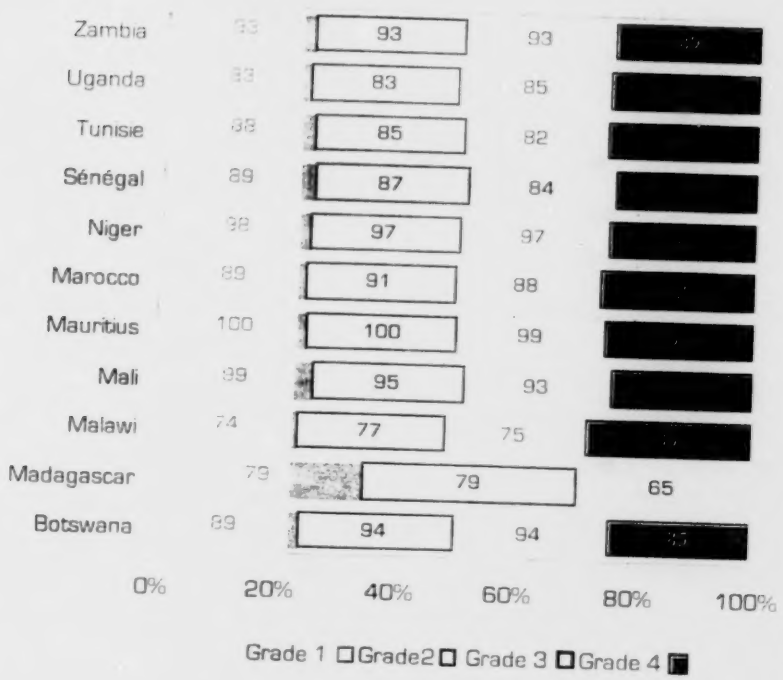
	Gender %		Mean Age	Home Language English/ French (%)	Attendance at pre-school classes (%)	Participation in school sport and cultural activities (%)
	Boys	Girls				
Botswana	50.0	50.0	13.5	8.3 E	34.5	52.6
Madagascar	51.2	48.8	11.4	5.3 F	25.3	75.4
Malawi	50.0	50.0	12.4	10.4 E	24.1	77.4
Mali	54.4	45.5	11.4	18.9 F	31.4	30.8
Mauritius	47.5	52.5	8.7	8.9 E F	97.4	87.2
Morocco	50.6	49.4	10.9	18.8 F	70.8	36.7
Niger	52.6	47.4	10.7	14.9 F	56.2	22.4
Senegal	57.7	42.3	11.9	23.2 F	56.6	33.2
Tunisia	52.8	47.2	10.5	18.9 F	48.4	26.5
Uganda	50.7	49.3	10.7	18.9 E	48.8	71.7
Zambia	49.4	50.6	11.0	26.5 E	47.7	60.6

F=French

E=English

Most school survey research has clearly shown the strong influence of pre-schooling on learner performance. It is also argued that the availability of ***pre-school*** classes is associated with reduced repetition rates and lower average ages in any Grade. Serious between country differences are observed among the African countries surveyed (Table 4-1). For example, 97% of the Mauritius learners attended some pre-school classes, whereas only 24% of Malawi learners had been to pre-school classes. A rather similar trend is observed in the between-country differences for participation in ***school sport and cultural activities***, i.e. as high as 87% in Mauritius and as low as 22% in Niger. This could imply that schools in the latter tend not to offer opportunities for sport and cultural activities after school. Such

FIGURE 4-1: PERCENTAGE OF PUPILS PASSING GRADES AT FIRST ATTEMPT



highly varied characteristics among the learners surveyed clearly explain the marked between-country differences in learner performance observed in Chapter 3.

The number of years a learner spends in a grade is an important statistic, since repetition is a key source of inefficiency of an education system. A reduction in *repetition rates* ensures that improved efficiencies are achieved without necessity for greater financial inputs. It is reassuring to note that the percentage of learners passing each grade at the first attempt is relatively high for all countries. This means that repetition rates are relatively low for all grades and for all countries (Figure 4-1). Mauritius has the highest pass rate at first attempt while relatively higher repetition rates are experienced in Malawi and Madagascar. It is, however, important to note that in some countries the principle of automatic promotion is applied, thus learners are promoted to the next grade without having to repeat.

HOME BACKGROUND

The home background characteristics and conditions of the learner often determine her/his educational career. From the 1999 MLA survey in Africa, the key home background characteristics and conditions are discussed. The capacity of learners to concentrate and extract the maximum value from their school experience is severely reduced if they have not received an adequate food intake. Therefore the regularity, number and adequacy of ***meals received by learners*** in a school day is of critical importance to raising efficiencies in the utilisation of school opportunities. No matter how small, the percentages of learners who indicated that they did not receive any food with regularity are a cause of great concern (see Table 4-2). Significant proportions of learners in Mali, Uganda and Zambia have no more than one meal daily while the majority of their counterparts in the other countries have two or more meals daily. Such disparities must be considered when comparing the level of learner performance between countries.

The home environment of learners while they are attending school is important in securing support for their schoolwork. The physical presence of both ***parents in the home*** is of particular importance in this respect (Table 4-2). High proportions of the Morocco and Tunisia learner groups stay in households where both parents are present. In contrast, only 40.7% of Botswana learners indicated that they live with both parents.

TABLE 4-2: MEALS PER DAY & PUPIL ACCOMMODATION DURING SCHOOL TERM

	Meals per day			Pupil accommodation during school term %		
	No meals	One meal	Two meals or more	With both parents	With one parent	Other or boarding
Botswana	2.6	20.4	77.0	40.7	46.2	13.1
Madagascar	1.9	11.2	80.0	66.1	12.5	21.4
Malawi	3.0	21.9	75.1	68.4	20.6	10.9
Mali	3.0	95.6	1.4	76.9	9.7	13.4
Mauritius	1.7	13.5	84.8	77.9	15.8	6.4
Morocco	3.0	12.0	86.0	91.2	5.8	3.0
Niger	1.1	5.4	93.4	79.1	11.9	8.6
Senegal	1.5	5.0	93.5	69.1	6.1	12.2
Tunisia	0.4	8.2	91.6	91.0	4.6	1.2
Uganda	4.7	39.0	56.3	56.5	28.8	14.7
Zambia	3.8	40.8	55.3	62.9	24.4	12.7

The distance that a learner has to ***travel to school*** must be considered in developing a picture of the extent to which she/he can take advantage of the schooling opportunities available to her/him (Table 4-3). For a learner who has to walk some distance to school, it is important that she/he receives adequate food for nutrition and energy at home.

The distance to school as measured in time travelled may have an effect on the time a learner can spend at school. Longer travel time implies less time available for extra-mural activities. Travel time can be drastically shortened if the household has either its own vehicle or the financial resources to put the learner on some form of

TABLE 4-3:SHOOL ACCESS INDEX, MODE OF TRAVELLING TO SCHOOL & PUPIL ATTITUDE TO SCHOOL AND TEACHER INDEX

	School Access Index		Modes of travelling to school (%)				Pupil Attitude to School and Teacher Index	
	Mean	SD	Walk	Bicycle	Bus/ Car	Other	Mean	SD
Botswana	4.8	3.6	89.0	2.2	6.5	2.3	4.4	1.0
Madagascar	4.6	1.2	95.2	2.3	5.3	-	-	-
Malawi	5.1	3.2	96.3	1.6	1.7	0.4	4.9	1.0
Mali	2.5	2.2	92.6	3.7	1.6	2.1	4.8	0.5
Mauritius	3.8	3.0	57.7	1.5	35.3	5.5	4.9	0.4
Morocco	3.2	2.5	86.0	2.8	2.9	8.4	4.9	0.4
Niger	2.3	1.9	96.6	2.7	1.1	1.6	4.7	0.7
Senegal	2.1	1.8	89.8	4.2	5.0	0.9	4.8	0.6
Tunisia	3.5	2.5	89.1	2.8	2.3	1.8	4.7	0.5
Uganda	5.0	3.2	92.0	3.1	4.3	0.7	4.9	0.5
Zambia	5.2	3.4	87.2	2.3	9.7	0.8	4.8	0.5

public transport. With the exception of Mauritius, between 82% to 96% of learners in the participating countries walk to school while low numbers utilise other modes of transportation .

In order to develop a measure of the relative 'difficulty' or 'ease' of access to schools in the participating countries, the ***School Access Index*** was calculated from learners' self reports of distance and time from school (Table 4-3). Composite scores ranged from 0 to 10, where a low score implies easy access and a high score increased difficulty in moving to school. The easiet access was reflected in the score for Senegal (2.1) while highest difficulty in access is reflected in the score of Zambian learners (5.2).

Information on the general attitude of learners to school and on the levels of support they receive in the household can assist in understanding their learning achievement scores. Since positive attitudes of learners to their school can influence their levels of performance, an ***Attitude to School and Teacher*** **Index**

was constructed (Table 4-3). A range of scores from 0 to 5 is determined where higher scores implied more positive attitudes to school. The index reflects a uniformly high level of positive attitudes to school across all the learner groups in the participating countries.

HOME LEARNING SUPPORT

There is sufficient evidence today from both developed and developing societies that quality of education requires the strong support from the home of the learners. School or other educational institutions alone would not be able to guarantee an acceptable level of educational quality. Some key variables are chosen here to describe the home learning support from the data of the 1999 MLA surveys.

As shown in Table 4.4, there are marked variations among the African countries regarding home learning support. The practical application of lessons learnt during school hours in the form of homework is an important element in the learning process. Thus it is important to track the regularity with which ***teachers set homework.*** High percentages of learners in Mauritius receive homework regularly from their teachers whereas the lowest one is found in Niger, which is more than 10% lower than the next country average.

TABLE 4-4: INFORMATION ABOUT HOMEWORK

	Teacher sets homework (%)	Households where there is someone who helps pupils with homework (%)	Pupil reasons given for being unable to do homework			
			Looks after brothers or sisters (%)	Helps parents (%)	Watches TV/Radio (%)	Plays with friends (%)
Botswana	89.2	78.6	48.7	65.2	49.7	51.2
Madagascar	89.1	59.9	37.0	93.8	61.1	
Malawi	83.4	57.0	27.1	53.1	25.9	25.0
Mali	87.0	58.2	27.0	42.8	21.5	28.1
Mauritius	97.0	74.9	20.0	52.9	35.4	30.5
Morocco	96.7	58.9	17.6	57.3	6.3	18.2
Niger	72.0	58.5	46.0	56.0	51.9	43.3
Senegal	87.5	69.6	43.7	65.5	37.7	36.4
Tunisia	93.8	71.6	23.7	47.5	8.2	8.4
Uganda	86.5	57.3	57.2	82.3	50.8	47.0
Zambia	91.4	78.2	46.9	76.9	45.8	53.0

Learners' response to the question on whether there was someone at home who could ***help with their homework*** ranged from 57.0% to 78,6%. For all the participating countries approximately 60% or more of all learners indicated that there was someone in their home to assist with homework. The nature and type of assistance, however, is not known. This is a crucial issue that needs to be addressed. Support at home for schoolwork has been found in a number of school surveys, as well as in this current analysis (See Chapter 5) to have a positive impact on learners' learning achievement.

Homework provides the opportunity for learners to practise the newly acquired skills at school. However, homework is not necessarily prioritised after school for certain groups of children because there are other activities reserved for out-of-school time. It is therefore important to establish the extent to which homework patterns are affected by competing activities. Learners' allocation of time to ***activities other than school related work*** can reveal patterns in demand from parents for assistance in household chores, in childminding, or in their own choice of recreation options such as playing with friends, watching TV or listening to the radio (Table 4-4). Significant percentages of learners in Uganda indicated that they engaged in childminding, while in Madagascar many learners indicated that they helped their parents in the household. These percentages suggest that traditional childhood roles take up learners' time after school. In this regard, a gender breakdown of the allocation of such responsibilities would be of interest.

The education levels of parents influence the extent to which they are predisposed to support the learning development of the children in the home. Parents with higher education levels frequently manifest greater confidence in their ability to support their school-going children at the psychological level. Also, higher parental education levels reflect that parents are academically capable of providing such assistance. Parental education levels have constantly been found in most educational surveys to be a decisive factor affecting learner performance. The ***Parent Education*** Index gives a combined indication of the education levels of both mother and father (Table 4-5). Scores for each learner's household could range from 0 to 8 with a higher score indicating higher education levels of both parents. The mean parent education level in the Parent Education Index reflects a range between Morocco (1.25) and Mauritius (4.8). The countries with lower scores need to consider ways in which they can either increase adult education levels or compensate for low levels through initiatives directed at making schools and teachers more supportive. The impact of this index on learner performance and quality of education for all is pertinent for the between- and within-country differences.

The extent to which learners engage in out-of-school reading is directly influenced by the availability of reading materials in the home. The quantity and variety of materials available will reflect parental reading patterns. Thus learners from homes where parents engage in reading of greater quantity and variety have a

TABLE 4-5: PARENT AND HOME BACKGROUND INFORMATION

	Parent Education Index		Home Reading Material Index		Home Learning Support Index		Parent Opinion About Education Index	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Botswana	3.5	2.3	2.7	1.6	7.0	2.6	2.4	0.8
Madagascar	1.6	1.0	-	-	-	-	-	-
Malawi	2.7	1.8	2.4	1.6	6.3	3.3	2.6	0.7
Mali	2.0	2.5	1.5	1.6	5.3	0.9	2.9	0.4
Mauritius	4.8	1.6	2.8	1.5	7.4	2.5	2.6	0.7
Morocco	1.3	2.3	3.0	3.4	3.7*	2.1	2.6	0.7
Niger	3.9	2.0	1	0.1	5.0*	1.4	2.9	0.4
Senegal	1.7	2.1	1.7	2.1	5.3	1.0	2.9	0.3
Tunisia	-	-	-	-	-	-	-	-
Uganda	3.6	2.2	2.9	1.7	6.6	3.1	2.6	0.7
Zambia	3.8	1.2	2.0	1.5	7.1	2.9	0.9	0.6

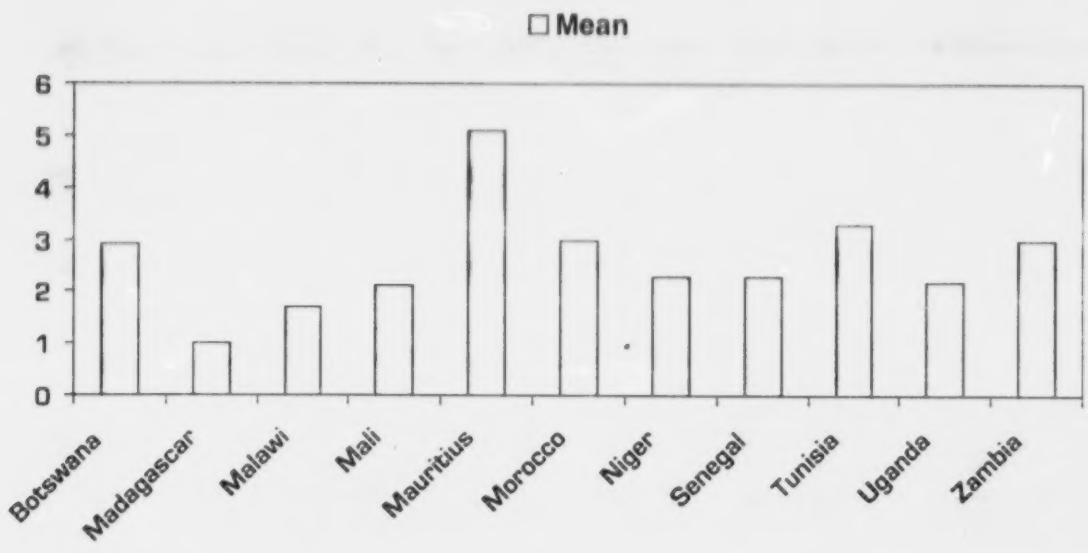
* Range 0 - 12
Range 0 - 6

correspondingly high opportunity to read and to model parent reading behaviour. The ***Home Reading Materials*** Index provides an indication of the quantity of learning materials available in the home (Table 4-5). Scores can range from 0 to 6 where higher scores signify greater variety and availability of reading material. Low scores imply that learners are probably receiving less exposure than required to reading materials. Once again the between-country differences on this index (3.0 for Morocco as compared to 1 for Niger) are quite glaring. Policy makers would need to seek ways of improving the quality of education by using such indices as yardsticks for interventions to improving school and public library access, or perhaps through the subsidy of books and newspapers to schools.

The ***Home Learning Support*** Index provides a picture of the interest and involvement displayed by parents in school activities of their children (Table 4-5). The questions that make up this index include the frequency with which parents or other household members participate in school activities, discuss the progress of the child with the class teacher and discuss schoolwork with the child. This index produced a range from 0 to 18 where higher scores indicate a more supportive household learning environment. The mean scores on this index for each country were grouped in the lower third of the possible range of the Index, which suggests that there is considerable scope for parents and other members of the household to support school going learners.

The extent to which parents are positively oriented towards the education of their children is important. Parents who place a high value on education will be committed to ensure that their children stay at school as long as possible and receive maximum benefit from the experience. The ***Parent Opinion About Education*** Index was constructed to provide an indication of the extent to which parents value the importance of education for the future of their children (Table 4-5). The index ranges from 0 to 3, with scores closer to 3 indicating a strong positive attitude towards education. The table providing mean values for parents by country clearly indicates that parents in all countries highly prize the educational experience that their children receive. Parental belief in the value added by education for social mobility and fruitful career of their children is a well-known fact. What parents tend to overlook is the importance of home learning support to

FIGURE 4-2: ACCESS TO INFORMATION INDEX



learning and for achieving quality of education for all.

Access to information in various printed or telecommunication media broadens the opportunity for learners to absorb information, to read and to increase their knowledge base. Information access potentially enriches their learning experience. The ***Access to Information*** Index (Figure 4-2) is constructed to reflect the different modes of information available to learners in their home and neighbourhood environment such as: access to radio, TV, video, computer, telephone, books and magazines in the home, and a local library. The index ranges from 0 to 7 where scores closer to 7 imply relatively high access to information. The average score on the Access to Information Index is highest for homes in Mauritius (5.1) and lowest for homes in Madagascar (1). The low mean score for a number of the participating countries implies that the average households in these countries have low access to information sources that could support learner schoolwork. This in effect means that learners are dependent on the school as the main source of their information needs.

A reinforcing literary environment can boost learner performance and quality of education for all. It is not enough to assume that learning takes place only within the four walls of the classroom. In simply describing the results from the analysis of the home environments of learning in the 1999 MLA African countries, an important element is being added. The march for quality education for all can only be achieved if parents and communities are empowered to play the role they can and should in this process.

TEACHER BACKGROUND

The quality of the learning environment at school depends to a large extent on the quality of the human resource capacity available. Teachers are the most important human resources and remain the backbone of any educational system. The background characteristics of the teaching force in terms of age, gender,

TABLE 4-6: AGE, SEX & NUMBER OF YEARS OF TRAINING OF TEACHERS

	Age Categories (%)			Sex (%)		Training (%)					
	Less than 20	Between 21 & 40	Over 40	Male	Female	Primary education	Secondary education	1 yr post-secondary	2 yrs post-secondary	3 yrs post-secondary	4 or more yrs post-secondary
Botswana	0.6	73.1	26.3	20.4	79.6	11.2	40.8	0.0	15.1	25.0	7.9
Madagascar	1.6	47.7	50.8	54.4	45.6	4.1	90.2	.	.	5.7	.
Malawi	0.0	88.9	11.1	48.4	51.6	1.6	77.8	2.6	12.7	1.6	3.7
Mali	1.5	41.8	56.7	77.6	22.4	33.9	41.9	8.1	12.9	3.2	0.0
Mauritius	0.0	43.2	56.8	60.5	39.5	0.0	76.0	2.3	13.2	2.3	6.2
Morocco	0.0	59.0	41.0	56.2	43.8	2.9	46.0	15.2	4.4	3.2	27.3
Niger*	0.0	82.5	17.5	37.5	62.5	.	.	.	.	.	.
Senegal	0.0	69.1	30.9	76.4	23.6	13.1	35.5	15.9	5.6	5.6	4.7
Tunisia	0.0	78.1	21.9	53.3	46.7	.	49.6	29.9	17.5	.	1.5
Uganda	0.0	89.6	10.4	58.3	41.7	3.4	23.7	1.9	44.0	4.1	22.9
Zambia	1.4	65.3	33.3	24.2	75.8	13.2	47.1	1.5	32.4	2.9	2.9

* Information not available

qualifications, experience and language can directly and indirectly influence the teaching and learning processes, and henceforth learner performance.

As regards ***teacher age*** of the teaching force from the 1999 MLA African participating countries, Niger, Malawi and Uganda currently have predominantly young teachers in service with over 80%

between the ages of 21 to 40 (Table 4-6). Countries with ageing teaching populations are Mauritius, Mali and Madagascar with over half of them older than 40 years. Marked differences are also found in terms of ***gender balance***, with female teachers in Botswana, Zambia and Niger in a clear majority and male teachers in Mali and Senegal in the majority. The between-country differences in teacher age and gender observed here may be of significant relevance to between-country differences in learning achievement.

Teacher training is a key input in improving the quality of teaching. In order to develop a picture of the training background of teachers in the participating countries, the percentage of each group which had received one or more years post secondary training was calculated (Table 4-6). This revealed that

TABLE 4-7: TEACHER EXPERIENCE

	Teaching career length in years		Years teaching Grade 4*		Years of teaching in the current school	
	Mean	SD	Mean	SD	Mean	SD
Botswana	11.5	9.9	2.6	2.1	4.7	8.0
Madagascar*	17.4	8.0	.	.	8.0	16.4
Malawi	13.1	22.2	12.4	28.3	9.5	22.6
Mali	14.8	10.0	3.0	4.2	4.6	3.5
Mauritius	18.9	9.6	4.1	4.0	4.1	2.9
Morocco	19.3	9.5	9.0	7.5	5.7	5.8
Niger	1.7	0.8	1.3	0.6	1.3	0.7
Senegal	10.9	8.5	3.0	3.8	5.8	5.8
Tunisia	12.9	7.8	3.1	2.0	5.1	5.0
Uganda	8.1	6.6	3.1	3.4	1.3	3.1
Zambia	12.2	8.9	3.4	4.0	0.0	0.0

*Question not included for Madagascar

Malawi, Mauritius, Madagascar and Mali had low proportions of teachers with post-secondary qualifications. How these important teacher-related characteristics would influence the level of learning performance between countries is an interesting question to be considered for the region as a whole.

In terms of ***teaching experience***, in the majority of participating countries teachers had between ten and twenty years of experience, except for Uganda, Malawi and Niger where mean teacher experience was 8.1, 7.1 and 1.7 years respectively (Table 4-7). For most teachers, their experience in teaching Grade 4 was considerably less than their total teaching experience. This implies that there is high teacher mobility between Grades over time. Malawi has the most stable teaching group with high average experience overall, high average experience in teaching Grade 4 and long service in their current school. Of considerable interest is whether the characteristic of stability observed for Malawi teachers could have any effect on the learning achievement level of their learners.

TABLE 4-8: TEACHER SUPERVISION

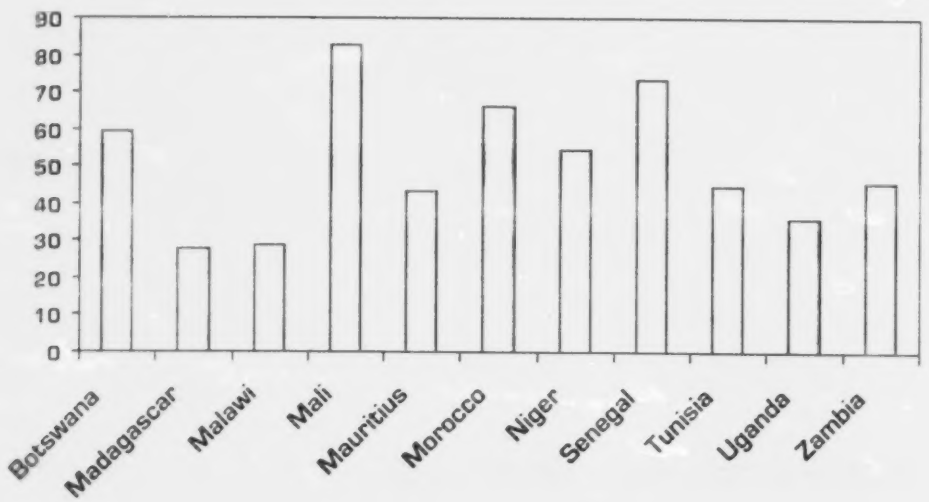
	How often supervisor observes teaching (%)			
	Not at all	Once a year	Twice a year	At least three times a year
Botswana	3.0	8.4	14.2	77.4
Madagascar	46.4	53.6*	-	-
Malawi	8.4	15.2	5.8	70.7
Mali	11.1	15.9	9.5	63.5
Mauritius	3.9	3.9	17.1	75.2
Morocco	2.8	7.3	19.0	70.9
Senegal	7.0	21.9	17.5	53.5
Tunisia	2.2	21.2	17.5	59.1
Uganda	5.9	3.3	1.8	89.0
Zambia	7.5	10.9	12.5	68.8

* at least once a year

The quality of teaching is influenced by the extent to which teachers engage in a process of evaluation. Support for teachers through ***observation by a supervisor*** is an essential feedback in the teaching practice. Such observation also serves to ensure acceptable levels of accountability in the teaching force. It is encouraging to note that high levels of supervision are evident in most participating countries, especially in Uganda, Botswana, Mauritius, Malawi and Morocco where more than 70% of teachers are observed by supervisors at least three times a year. The proportion of teachers who are "not supervised at all" ranges between zero and 11% in the participating countries (Table 4-8). It must, however, be noted that the high levels of supervision could include within-school supervision as well.

The teaching corps is a valuable national resource, as mentioned earlier. Trained teachers represent a significant social investment and their levels of motivation and career commitment are of concern to policy makers. Therefore an indicator of the predisposition of teachers to leave the ranks of teaching is of interest.

FIGURE 4-3: PERCENTAGE OF TEACHERS WHO REPORT THAT THEY WOULD CHANGE CAREER



Teachers were required to indicate whether they would ***change to another career*** if they had the opportunity. The fact that in 5 countries more than 50% of teachers indicated willingness to change career is a matter of concern (Figure 4-3).

The findings here clearly point to the need to critically examine teacher conditions, teacher promotion procedures as well as in-service training needs and support.

TEACHING CONDITIONS

The availability of a range of teaching and related equipment, supplies, furniture, and various forms of printed media for teachers and learners is critical in facilitating the process of teaching and learning world wide.

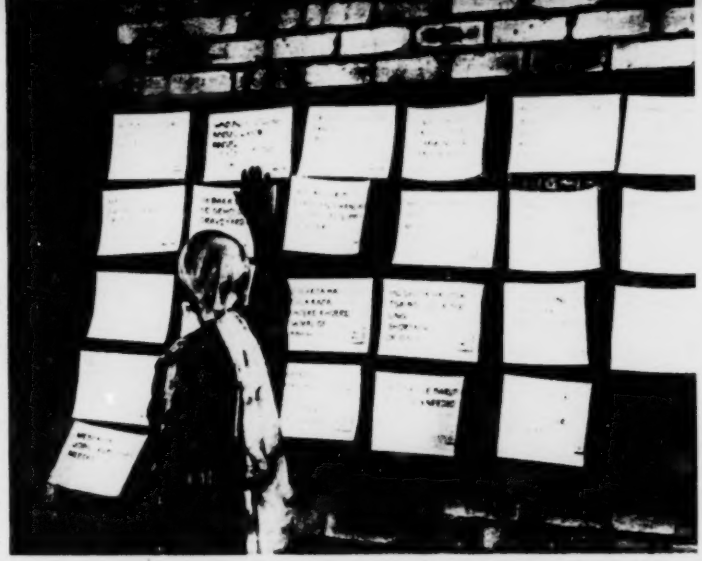
TABLE 4-9: INFORMATION ON CLASSROOM AND TEACHER RESOURCES

	Classroom Furniture Index		Teacher Guide Available Index		Learning Materials Index	
	Mean	SD	Mean	SD	Mean	SD
Botswana	4.9	1.2	3.0	1.2	4.7	1.3
Madagascar	3.5	1.4	1.4	1.3	1.5	0.8
Malawi	1.8	1.3	3.1	1.1	3.5	1.2
Mali	4.5	0.8	2.1	1.2	4.9	0.7
Mauritius	5.9	.3	1.4	1.2	5.0	1.0
Morocco	4.9	0.5	2.7	1.4	5.2	1.5
Niger	3.6	1.7	2.0	0.0	3.9	0.8
Senegal	5.1	1.1	2.6	1.5	3.4	1.5
Tunisia	4.8	0.4	3.5	0.8		
Uganda	3.4	1.4	2.5	1.2	4.1	1.2
Zambia	3.6	1.5	2.7	1.1	4.1	1.5

The rapidly tightening financial constraints on African education are well known. In addition, the very high proportion of recurrent expenditures that is allocated to teacher salaries severely restricts the funds available to improve classroom and teacher resources.

The availability of sufficient basic furniture for the use of learners and for the use of teachers (e.g. desks, tables, and chairs) produces an enabling physical environment that can facilitate the teaching and learning process. An index based on teacher ratings of sufficiency of six basic classroom furniture items (chalkboard, teacher chair, teacher table, learner desks, learner chairs and cupboards) was constructed. The ***Classroom Furniture*** Index can range from 0 to 6 where a high score indicates higher levels of furniture availability (Table 4-9). The mean country scores on this index range between 1.8 for Malawi to 5.9 for Mauritius. Such low range of scores, which also include Uganda, Zambia, Madagascar and Niger, suggests that classroom furniture supplies need to be improved.

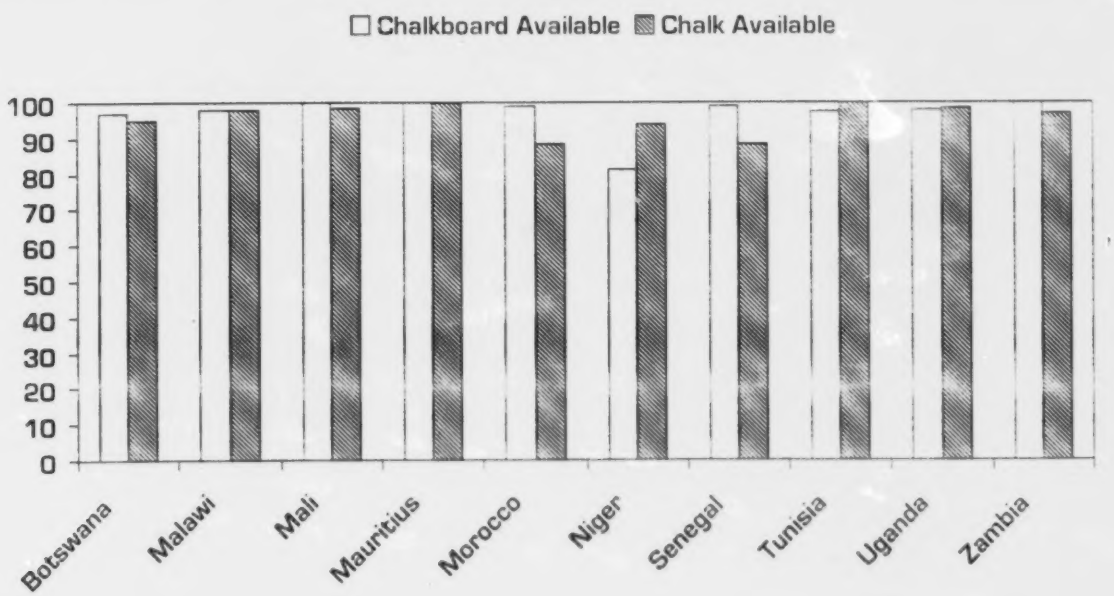
The availability of learning materials is a minimum condition for enhancing the quality of the teaching and learning process. The ***Learning Materials*** Index is created to give an indication of the availability of learning materials for use in the teaching and learning process (Table 4-9). It includes the availability of chalk, teacher-made wall charts, learner-made wall charts, commercial-made wall charts, learning aids from the environment and exercise books for learners. A score of one is allocated for the availability of each of these items which produces a possible range from 0 to 6, where a high score indicates that a variety of learning materials from different sources are available. Teachers from all countries besides Madagascar indicated that there is adequate availability of such materials.



Teachers' guides represent a potentially important source of information and support for teachers. This is particularly the case for teachers working in schools that are located in isolated rural areas who will not have as ready access to support, supervision and teaching materials as their urban counterparts. The ***Teachers' Guide Availability*** Index focuses on the availability of teachers' guides in the core Grade 4 subject areas of Numeracy, Literacy (English/French and mother tongue) and Life Skills. A score of one is allocated for availability in each of the curriculum areas identified above, giving a possible range from 0 to 4. For this indicator, a low score is indicative of a lack of teachers' guides while a high score is indicative of high levels of availability teacher s' guides (Table 4-9). Only teachers in Tunisia noted that they had adequate availability of teachers' guides. This observation is pertinent for the analysis of the influence of teachers' guides on learner performance between the participating MLA countries.

The class "chalkboard" has been identified as a critical resource for sustaining adequate teaching and learning interactions. The provision of all physical equipment to secure levels of high quality learning cannot always be achieved in significant numbers of schools in developing countries. For this reason education researchers have attempted to identify those critically important supplies that must be secured to ensure teaching and learning of acceptable quality. Questions from the Teacher Questionnaire that refer to the

FIGURE 4-4: CHALKBOARD AND CHALK SUPPLY



availability of chalkboards and ***chalk*** have been extracted from the questionnaire (Figure 4-4). High percentages of teachers reported the presence of chalkboards (97%) and higher availability levels in all participating countries, with the exception of Niger which reported 81% availability. Availability of chalk was also relatively high with a percentage range of 88% or better.

TEACHERS' WORK ENVIRONMENT AND ACTIVITIES

TABLE 4-10: AVAILABILITY OF TEACHER RESOURCES INDEX AND TEACHER ACTIVITY AFTER SCHOOL INDEX

	Availability of Resources Index		Teacher Activity after School Index	
	Mean	SD	Mean	SD
Botswana	1.7	1.2	3.0	.9
Madagascar	1.4	0.9	2.9	1.1
Malawi	1.0	.9	4.3	1.4
Mali	2.7	1.9	3.4	1.2
Mauritius	1.7	1.1	2.9	1.1
Morocco	1.2	0.4	1.6	1.7
Niger	0.6	0.5	2.6	1.8
Senegal	0.5	1.0	1.5	1.3
Tunisia	1.2	0.4	3.3	1.0
Uganda	1.8	1.1	4.3	1.5
Zambia	1.6	1.0	3.7	1.5

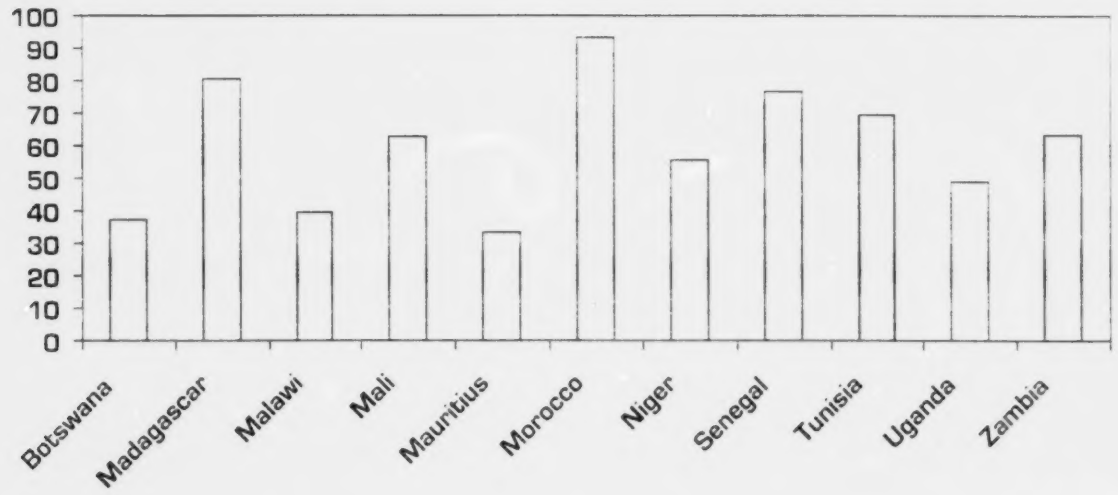
Ready access to a range of resources and services enables teachers to enrich their classroom teaching through exposure to professional development courses at teacher in-service training institutions and through utilising library and dedicated teacher resource centre facilities to enrich their classroom teaching. The ***Availability of Teacher Resources*** Index is developed in order to provide an indication of the extent to which teachers have access to such opportunities (Table 4-10). With a possible range from 0 to 4, a high score indicates that a variety of teacher-oriented resources from different sources are available. The country means range between 0.5 for Senegal to 2.7 for Mali. These nationall results clearly show the marked differences between the countries surveyed. Even though the in-depth within-country analyses of these indices have yet to be released, it is clear that greater emphasis should be given to the improvement of access to teacher resources so as to empower teachers to positively influence the teaching-learning environments of children.

TABLE 4-11: PERCENTAGE OF TEACHERS ENGAGING IN ACTIVITIES AFTER SCHOOL HOURS

	Type of School Activities After School Hours					
Country	Administration (%)	Preparation for lessons (%)	Correcting/ marking (%)	Extra-curricular activities (%)	Remedial teaching (%)	Meetings (%)
Botswana	45.2	100.0	98.1	92.8	86.3	91.3
Madagascar	32.4	87.5	82.4	25.3	13.1	45.5
Malawi	33.1	96.3	77.5	80.7	68.3	82.6
Mali	45.2	100.0	98.2	60.5	45.7	69.6
Mauritius	1.8	99.2	91.3	44.1	29.7	31.3
Morocco	35.3	99.4	98.8	68.4	63.2	6.9
Niger	21.5	60.8	70.9	27.8	36.7	44.3
Senegal*	14.5	-	8.8	24.6	23.0	29.5
Tunisia	17.9	100	95.5	30.0	50.0	75.9
Uganda	58.0	98.9	89.9	71.4	59.8	72.2
Zambia	41.7	100.0	69.8	67.7	61.9	76.3

The extent to which teachers engage in school related activities after school hours is a strong indication of teacher commitment to their learners, schools and the profession. The ***Teacher Activity after School Index*** is constructed through reference to teacher involvement in administration, lesson preparation, marking learner exercises; extra-curricular activities, remedial teaching, and school related meetings after hours (Table 4-10). This structure produces a possible range from 0 to 6 with a high

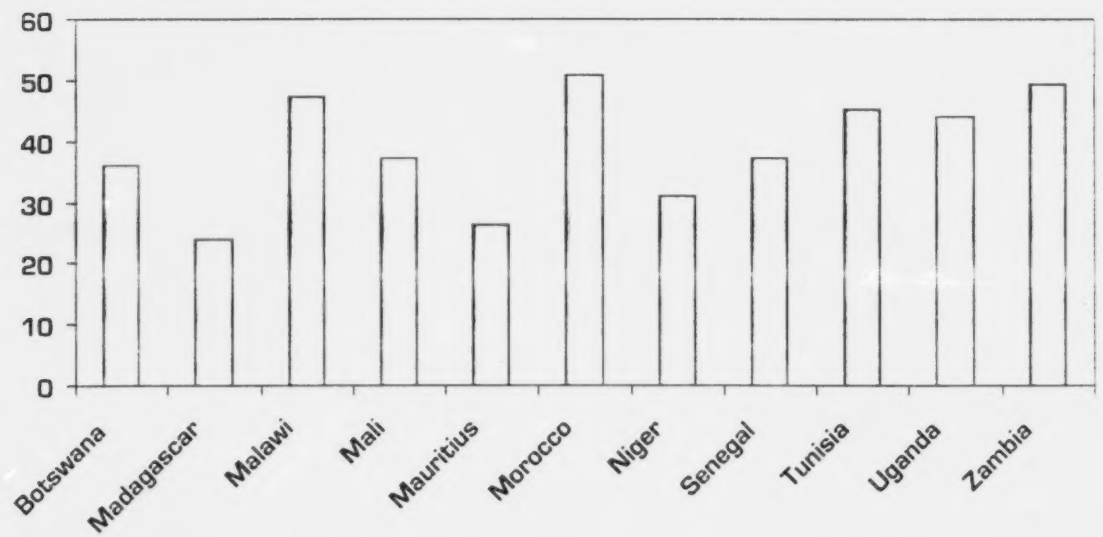
FIGURE 4-5: PERCENTAGE OF SCHOOLS WHERE TEACHER ABSENTEEISM OCCURS HARDLY OR NOT AT ALL



score indicating greater commitment. Niger has the lowest score and Botswana has the highest one on this index.

The most common after-school activities of teachers are preparation for teaching lessons and marking and correcting learners' work (Table 4-11). The allocation of time by teachers during the day to activities other than teaching is of strategic importance.

FIGURE 4-6: PERCENTAGE OF TEACHERS WHOSE WORK IS AFFECTED BY TRAVELLING



Teacher absenteeism

Teacher absenteeism can represent a major threat to the continuity of learning of learners especially where this occurs on a relatively frequent basis. High levels of ***teacher absenteeism*** from school can also add significantly to the levels of demand on those teachers who are present at school, as they are frequently called upon to take up extra workload. In order to develop an indication of teacher absenteeism levels, the percentage of schools where absenteeism levels are rated "hardly" "any" or "not at all" by the school head is calculated (Figure 4-5). Higher percentages for Morocco, Madagascar, Senegal and Tunisia indicate that teacher absenteeism is not a major problem. Teacher absenteeism is more of a problem in Mauritius and Botswana where only 33.3% and 37.5% of principals respectively could say that teacher absenteeism occur "hardly" or "not at all". As a proxy for measuring quality of education for all, this information is of great interest to policy makers and the teaching community as a whole.

For teachers whose homes are far from the school where they work, ***the time spent travelling*** to and from school can represent a severe drain on the time that they can make available for teaching-related activities after school hours. For this reason, it was considered important to establish to what extent travel time is a factor that affects teachers. As can be seen, the necessity to spend time travelling affects more than one third of teachers in nine out of the eleven participating countries (Figure 4-5). There are also marked differences between countries, thus demonstrating how complex African education really is. Any regional plan to provide quality education for all will need to take into account such types of analysis on a between- and a within- country basis. Further in-depth analysis of these data sets will provide greater information.

TABLE 4-12: MEAN AGE OF SCHOOL HEADS

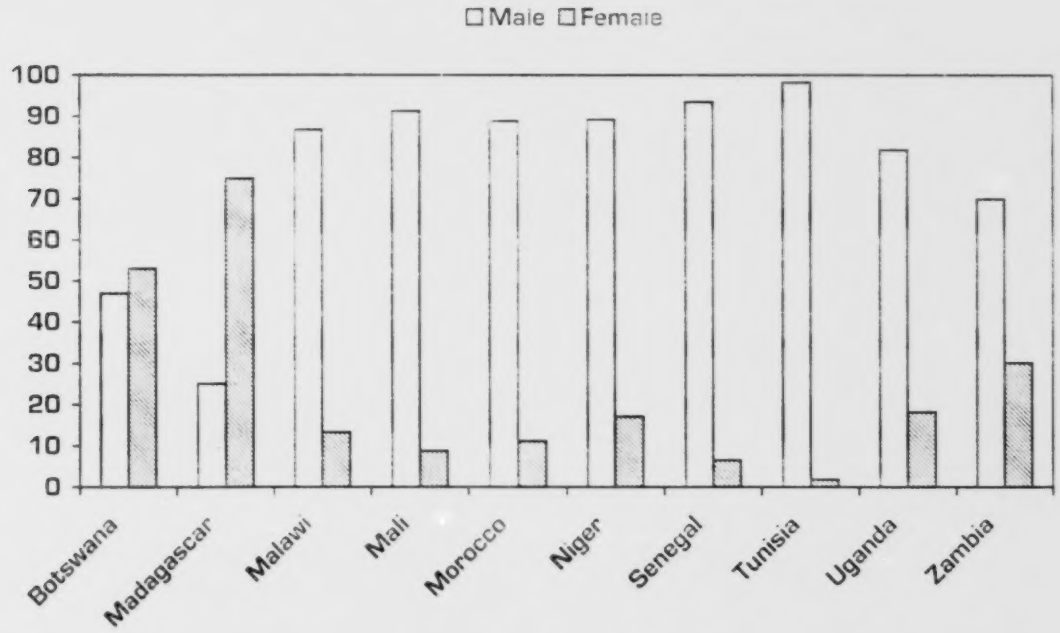
	Mean	SD	Minimum	Maximum
Botswana	50.05	7.06	36	64
Madagascar	45.45	8.70	23	87
Malawi	40.65	8.01	21	62
Mali	47.25	6.87	29	70
Mauritius	53.20	3.52	47	59
Morocco	53.21	5.43	35	64
Niger	41.51	5.86	30	54
Senegal	42.92	9.78	22	67
Tunisia	48.86	6.19	32	60
Uganda	41.66	7.50	25	64
Zambia	44.76	6.53	25	56

SCHOOL HEAD BACKGROUND

The effectiveness with which the school management team fulfils every day functions, provides overall leadership, and motivates the entire school community depends to a considerable extent on the background characteristics of the school head. This section discussed the school head age, gender, qualification and experience.

The age of the school head is important because this characteristic provides a general measure of the amount of experience that school heads have in education (that is assuming that she/he has not spent some time in another profession). If a group of school head has a high mean age this can be interpreted positively to imply that she/he has accumulated much experience. However, an ageing school head group can also imply that they will need more in-service training especially if new approaches to pedagogy or management have been introduced through government policy. The mean ages of school heads in the participating countries ranged from 40.65 in Malawi to as high as 53.21

FIGURE 4-7: GENDER OF SCHOOL HEADS



in Morocco. In Mauritius, Morocco, and Botswana the average age of school heads exceed 50 years. It is noteworthy that in Madagascar and Mali, some school heads are seventy years and older. Finally, it should be noted that in some countries school heads assume that position of responsibility at a very young age (21, 22 and 23 years in Malawi, Senegal and Madagascar respectively). This, however, must be viewed in the context of the school location, size and type.

Gender of School Heads

The results from the earlier gender breakdown of teachers have shown marked differences from country to country. The ***gender of the school head*** is of interest, especially in cases where the majority of

TABLE 4-13: SCHOOL HEAD QUALIFICATIONS

Educational level	Primary (%)	Secondary (%)	University/ Post Graduate (%)	Other (%)
Botswana	44.4	49.2	3.2	3.2
Madagascar	13.5	79.8	6.7	0.0
Malawi	3.1	96.9	0.0	0.0
Mali	6.2	81.6	9.2	3.1
Mauritius	1.8	91.2	7.0	0.0
Morocco	5.1	78.5	16.4	0.0
Niger	17.1	79.3	3.7	0.0
Senegal	4.9	67.5	26.0	1.6
Tunisia	0.0	80.7	12.3	6.1
Uganda	8.8	49.8	14.7	26.7
Zambia	5.8	79.7	10.1	4.3

school heads are of the opposite gender to that of teachers. In every participating country, the percentage of female school heads is far lower than the percentage of female teachers (Figure 4-7).

In only two countries, Madagascar and Botswana, there are more female school heads than male school heads. This observation clearly shows the gender bias in school management and leadership in African educational systems. It may indirectly serve as an important focus point to promote not only girl's and women's education, but also the status of girls and women in African setting into the 21st century. Still much remains to be done in this regard.

Educational Qualification

The educational qualification of school heads can serve as an important indicator of the quality of the school human resource and leadership. It is assumed that school heads with higher levels of qualification should be better equipped with higher-order type of management skills. This would include the capacity to interpret and implement national education policy, as well as the capacity to develop and sustain school level governance and administrative systems and procedures. What is immediately apparent from Table 4-13 is that in three countries, namely Botswana (44.4%), Niger (17.1%) and Madagascar (13.8%) the proportions of school heads with only a Primary School level qualification is high. The proportion of countries where school heads have a Secondary qualification ranges as high as 96.9% in Malawi and 91.2% in Mauritius. However, it is also important to look at the overall proportions of school heads who have either a University or post graduate level qualification. In this regard Senegal (26.0%) has the highest number of school heads. These great variations in educational qualification of school heads clearly mirror the marked between-country differences in their educational standard, leadership and managerial capacities.

TABLE 4-14: SCHOOL HEAD EXPERIENCE

	No of years as head Current School				No of years as head Other school			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Botswana	5.52	4.33	1	19	9.24	5.99	1	25
Madagascar	7.11	7.14	1	41	4.99	6.88	0	33
Malawi	3.51	2.89	1	18	4.72	6.48	0	29
Mali	6.85	2.88	2	19	4.74	2.36	0	13
Mauritius	2.18	1.73	1	10	2.55	2.13	0	8
Morocco	5.01	6.03	1	52	5.75	7.46	0	52
Niger	14.46	8.88	1	32	-	-	-	-
Senegal	4.90	4.92	1	24	4.58	5.70	0	24
Tunisia	5.23	4.79	1	22	8.19	7.63	0	33
Uganda	4.24	3.42	1	25	9.99	7.37	1	35
Zambia	4.27	3.30	1	18	5.18	5.28	0	21

School head experience

The critical importance of the experience of the school head has already been referred to above. The information on how long school heads have been in their current school serves as an indicator of the stability of the leadership at the institutional level. Most school heads have a great deal of experience as evident from the total years of experience as school head in current and in other schools. For most

school heads, however, their experience was gained at other schools. The mean number of years experience in the current school, which is over 4 years for all school heads besides Malawi and Mauritius, suggest some stability in this profession.

SCHOOL CHARACTERISTICS

The school teaching and learning environment in Africa varies considerably from schools which have a range of physical resources at their disposal to schools which are forced to make do with the barest minimum, for example, teaching outside in the sun with only a tree for a shelter. The physical environment of the school with reference to the extent of the land on which it is located, the shape and design of the school building and classrooms, and the availability of essential amenities such as water, electricity and toilet/sewerage facilities are extremely important. These basic school characteristics will either enable or constrain the range of learning-related activities both in- and out- of the classroom that learners can engage in during- and after- school hours. For this reason, the physical amenities available at the school are presented in terms of the extent to which they facilitate the teaching and learning process of learners.

TABLE 4-15: SCHOOL FACILITIES

	School Building Index		Lack of Amenities Index	
	Mean	SD	Mean	SD
Botswana	1.9	1.0	1.3	1.8
Madagascar	1.83	1.53	3.31	1.26
Malawi	0.9	1.0	2.6	1.3
Mali*	.	.	1.3	1.2
Mauritius	2.4	1.0	1.4	1.2
Morocco*	.	.	1.8	0.8
Senegal	0.3	0.7	1.4	1.0
Tunisia	1.5	0.9	2.1	1.1
Uganda	1.5	1.1	1.8	1.1
Zambia	1.7	1.3	1.1	1.5

*Questions not included in questionnaires

Some schools will have a variety of rooms available for special purposes such as workshops, staff rooms and offices. A school building, which has a broader range of rooms available, represents a more supportive environment within which the school staff must work. The ***school building index*** therefore gives an indication of the type and range of physical facilities available in the schools. Scores can range from 0 to 6 where a higher score indicates a greater range of rooms available for teaching and administrative purposes. The index reveals that schools in Mauritius score highest on this index whereas schools in Senegal score lowest.

TABLE 4-16: SCHOOL SHIFTS

	Single (%)	Double (%)	Triple/ Multiple (%)
Botswana	62.1	37.9	0.0
Madagascar	61.8	38.2	0.0
Malawi	85.3	6.2	7.8
Mauritius	98.2	1.8	0.0
Morocco	22.5	55.6	21.9
Niger	59.0	39.8	1.2
Senegal	84.6	14.1	1.3
Uganda	91.7	2.9	5.4
Zambia	18.3	32.4	49.3

It is important for the broader physical environment of the school to meet the broader curriculum and recreational needs of the learners. Physical amenities such as the availability of a playground, sports equipment, and land for a school garden can broaden the scope of learner activities both in and outside of school hours. In order to establish

	Total School Enrolment	
	Mean	SD
Botswana	310.8	307.6
Madagascar	327.7	331.3
Malawi	808.0	674.4
Mali	435.0	237.8
Mauritius	500.8	350.5
Morocco	492.7	305.7
Niger	429.5	238.9
Senegal	500.97	402.2
Tunisia	358.5	188.9
Uganda	744.0	413.5
Zambia	801.4	620.3

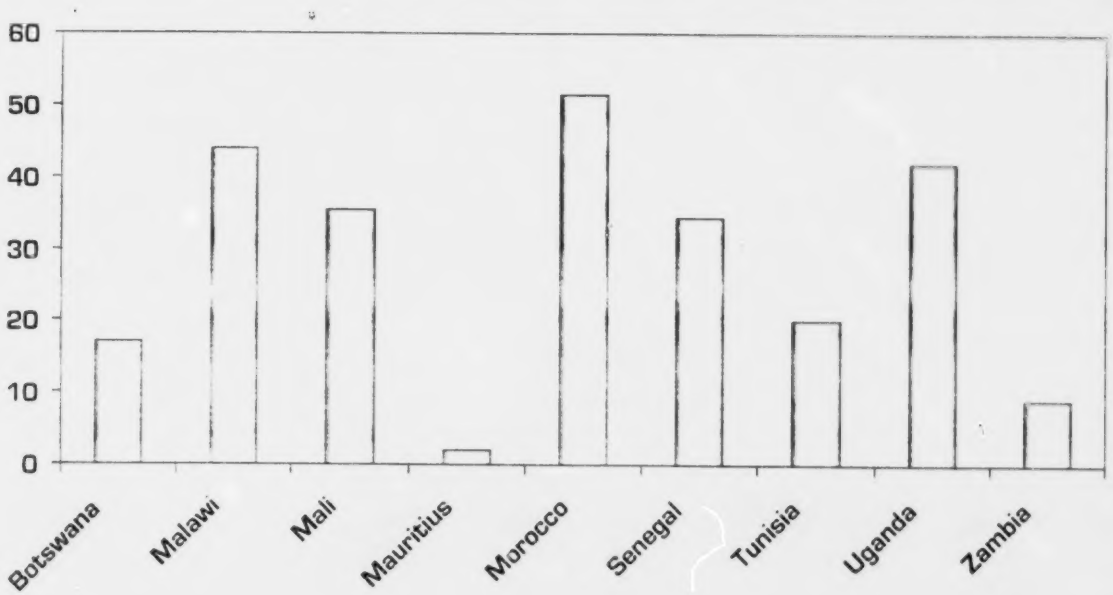
the extent to which such facilities are not available, a ***lack of amenities index*** was constructed where scores can range from 0 to 6. Accordingly, the higher the score on this index the greater the need for supplying such amenities. Schools in Malawi and in Tunisia reveal the greatest need for the supply of basic amenities. Again the high between-country differences are on these indices should be emphasised.

In some countries, where there is a lack of availability of physical resources in relation to school demand, the utilisation of existing school buildings and resources is maximised. This has been done by introducing strategies such as double and even triple ***school shifts.*** These strategies put an enormous strain on the physical resources as well as on the learners and teachers themselves depending upon the shift they are allocated to. Resorting to this shift system also tends to limit the possibilities for in-school and out-of-school extra-curricular activities. What is startling is the high number of schools operating on triple shifts in Zambia (49.3%) and Morocco (21.9%) while others have little need for school shifts (Mauritius and Uganda).

School Size

The size of a school can influence the range and intensity of management demands on the school head. In the participating countries, there was a considerable difference in ***school size ranging*** from a mean of 358 in Tunisia to 808 for Malawi (Table 4-17). These observed variations among African countries are quite startling and suggestive of the importance of school size as a factor influencing the capability of schools to deliver quality of learning to all learners.

FIGURE 4-8: PERCENTAGE OF SCHOOLS WHERE SCHOOL SAFETY IS RATED AS POOR

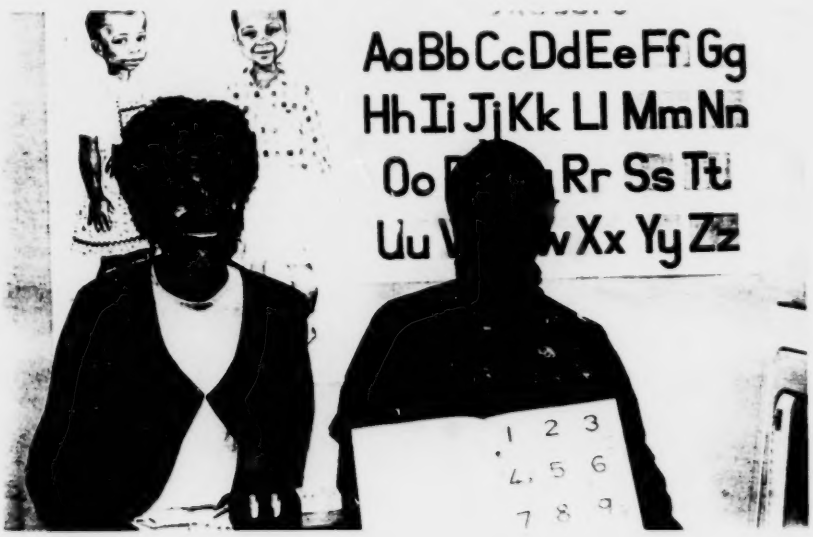


School Safety

Safety aspects are of crucial importance to school managers who wish to generate maximum use of the school facility. If the safety of learners and teachers cannot be guaranteed, especially after normal school hours, then the levels of school and community usage of the facility will remain unacceptably low. Levels of ***school safety*** are represented as a percentage of all school heads who indicated that school safety was poor (Figure 4-8). It is clear from the data that school safety is of concern to significant numbers of school heads in several of the participating countries. In Morocco, Malawi, Mali and Senegal significant percentages of school heads rated the safety of their school environment as poor. This information may serve as an indirect measure of the seriousness of countries in promoting quality of education for all.

CONCLUSION

The analysis of the teaching and learning environments at home and in school of the countries surveyed in 1999 in Africa provides a unique information base for educational policy-making in the years to come. It has also served to identify and to highlight a number of important contextual factors and variables that can directly and indirectly affect the performance of learners. However, it is important to note that the analysis provided in this chapter serves as a preliminary exploration of the vast amount of data that is being collected as part of the MLA exercise. More in-depth analysis will be conducted and presented in further regional, sub-regional and national reports. There is considerable scope to further develop the analysis for between-country differences and within-country differences in order to expose the increasing importance of generating more conducive environments at home, in the community, at school and in the classroom. Out of such analyses further recommendations for providing an education of quality for all in Africa will flow. The importance of these teaching and learning environments on learner performance will be examined in Chapter 5 using path analysis with LISREL.



CHAPTER 5
FACTORS INFLUENCING LEARNER PERFORMANCE

Knowing what children learn and under what conditions they are has been the major emphasis of the foregoing chapters. The present chapter provides detailed analyses of the factors that influence learner performance in the 1999 MLA surveys condcuted in 11 African countries. Path analysis (LISREL) was used for this purpose as it allows one to optimally understand the interplay (direct, indirect and total causal effects) between the many personal and contextual factors on learner performance. In the first section of this chapter, an overview of these factors and their sources is given. Thus the primary focus is on the specific processes to be employed for identifying those variables that may, or may not, have a significant influence on the teaching and learning processes in general, and on the performance of learners in particular. It must be noted, however, that there are many other approaches that can be used to identify variables that influence learner performance.

A conceptual model capturing the various factors influencing learner performance and the inter-relationships is presented first. This model is built upon the results from the bivariate and multivariate analyses carried out in the 11 African countries of the 1999 MLA surveys. The most important predictors on learning achievement are retained for the path analysis with LISREL. The results from the LISREL path analysis are presented separately for every country with a view to identifying country-specific factors and inter-relationships in influencing learner performance. This is then followed by a cross-examination of the common as well as the country-specific determinants of learner performance in order to relate the findings and implications to the decision-making processes at both national and regional levels.

FIGURE 5.1: GLOBAL CONCEPTUAL MODEL FOR FACTORS INFLUENCING LEARNER PERFORMANCE

GLOBAL MODEL: FACTORS INFLUENCING LEARNER PERFORMANCE

In the MLA project, all questionnaires were designed to elicit information on specific variables that representatives from participating countries regarded as important for an understanding of the contextual background of learners in the school system (see Appendix B for more information). In order to form a better understanding of the various factors that influence learner performance, different variables were identified based on previous research as well as on the knowledge and experience of the authors. The variables identified for analysis, which are noted below, are presented in terms of the questionnaires from which information was solicited.

Learner questionnaire

- *Learner characteristics (LC)* comprise two variables: age and gender.
- *Home background (HBG)* was calculated from the following questions: Do you have a meal before coming to school? Do you have a meal after leaving school? Did you attend any pre-school classes? Do your parents buy newspapers/magazines? Do you have a radio, telephone TV, video and/or computer at the place where you live?
- *Access to school (AS)* comprises questions regarding how far away the school is and how long it takes to get there.
- *Homework (HW)* has two variables. The first is whether the learner is sometimes unable to do homework because he/she has to assist the family, and the second is whether he/she is unable to do homework because of social/leisure reasons.
- *Attitude to school and teacher (ATT)* included questions that focussed on whether the learner likes school, likes the teacher, learns a lot at school and enjoys learning.

Parent Questionnaire

- *Family education level (FEL)* comprises questions regarding the highest qualification level attained by both the mother and father.
- *Home learning environment (HLE)* focuses on whether there are books or magazines in the home and whether parents are members of a library.
- The *Home learning support (HLS)* construct focuses on whether parents participate in school activities relating to their grade 4 child, discuss school work or progress with the child or the teacher.
- *Socio economic status (SES)* has three variables: (a) Does the family live in their own home? (b) An index that counts the number of amenities (running water, electricity, etc.) and (c) a household goods index (i.e. do they own a radio, TV, etc.).

Teacher Questionnaire

- *Teacher characteristics (TC)* include background information such as age, gender, years in the teaching profession and teacher qualifications.
- *Classroom characteristics (CC)* comprise those classroom variables that have an influence on the teaching and learning process, i.e. whether the classroom was shared with learners of another grade and the number of learners in the class.
- The *Assessment practices (AP)* construct looked at the range of assessment methods employed

by the teacher as well as the frequency at which the learners were assessed.

- *Availability of chalkboard (CHB)* focussed on whether chalkboards were available for use by teachers.
- *School learning environment (SLE)* included the various facilities and resources available for use in the teaching and learning process, e.g. wall-charts, etc. and whether all the learners have exercise books to write in.

School Questionnaire

- *School location and type (SLT)* refers to: (a) whether the school was located in an urban or rural area and whether it was a private or public school.
- For the *Safety and security (SS)* construct, questions were posed to determine the difficulty of access to a police station as well as the status of abuse of learners by teachers.

Tests

- *Learner performance (LP)* comprises the total mean scores for each of the three tests: (1) Life Skills, (2) Literacy and (3) Numeracy in the 1999 MLA surveys in Africa.

DETERMINANTS OF LEARNING PERFORMANCE AND THEIR INTER-RELATIONSHIPS

The global conceptual model (Figure 5.1) provides an understanding of the factors that have been retained for further analyses of determinants of learning achievements and their inter-relationships from the 1999 MLA surveys in Africa. To ascertain the relationships between the selected variables and learner performance, the Pearson, tetrachoric, biserial and polychoric correlation coefficients were calculated (depending on the type of variable, i.e. interval, ordinal or dichotomous) and examined for each country. This process entailed merging the data from the different questionnaires for each country and disaggregating variables at the school level to the learner level (on which the analyses were done). Only those constructs and their respective variables that had significant correlation coefficients with the test scores are retained for the LISREL path analysis. In total, 17 constructs were identified for the path analysis.

Two problems were encountered while preparing the data for the path analyses in the different countries. The first was that there were many missing data for some of the questions (in some cases more than 30%). Such questions were excluded from the path analysis. The second problem was that there was very little variation in some questions, i.e. most of the responses (90% or more in some cases) fell in one response category. Such questions (variables) were also excluded from that path analysis since these often are the cause of artificially high correlations, which would distort the true situation.

The foregoing serves as an explanation why the models for the different countries are not the same: They differ in terms of the number of constructs in the model and in the variables used to measure the constructs.

Path analysis is a statistical technique that allows one to compare the direct, indirect and total causal effects of variables in a complex system of relationships. This type of analysis can be conducted using

a number of different statistical software packages and methodologies. The LISREL model consists of two parts: (a) the measurement model used to specify the relationships between latent variables and their indicators (observed variables), and (b) the structural model in which the relationships between the latent variables are specified. For each of the 11 MLA participating countries, the model that was used was subjected to a measure of fit. Table 5.1 gives the number of observations (N) in each country that could be used for the path analysis, as well as the RMSEA (root mean square error of approximation) which is an indication of how well the LISREL model fits the data. The well known Chi-squared statistic for model fit was not used as it is based on the assumption that the model holds exactly in the population. This assumption may be unreasonable in empirical research since models which will hold approximately in the population will be rejected in large samples.

TABLE 5-1 GOODNESS OF FIT OF COUNTRY MODELS

COUNTRY	N	RMSEA	P-value (close fit)
Botswana	3087	0.082	0.9961
Madagascar	2097	0.057	0.0599
Malawi	781	0.099	0.0001
Mali	648	0.094	0.0001
Mauritius	1429	0.078	0.0001
Morocco*	3087	-	-
Niger	588	0.152	0.0001
Senegal	742	0.001	0.9980
Tunisia	1214	0.001	0.9983
Uganda	3028	0.073	0.0001
Zambia	710	0.089	0.0001

The RMSEA gives an idea of the fit of the model to the population correlation matrix (adjusted for the degrees of freedom). It is suggested that a value of 0.05 indicates a close fit, and that values up to 0.08 represent reasonable fits (Browne & Cudeck, 1993). The p-value in the table is a formal test that the model represents a close fit to the population.

* No degrees of freedom for testing fit of model

Country-Specific LISREL Analysis

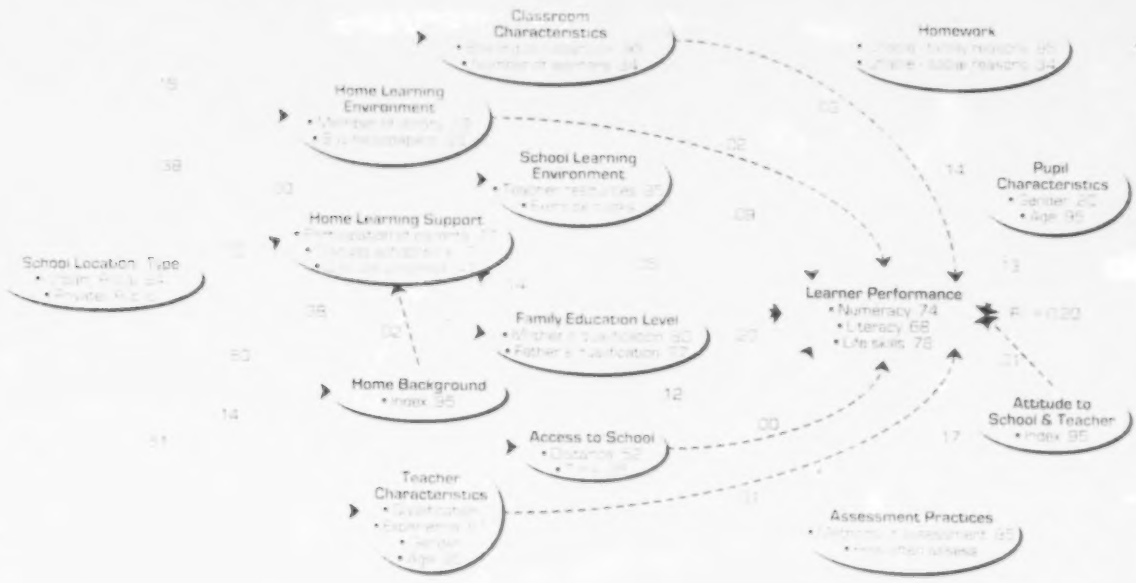
This section examines the correspondence of the global model with the country-specific model of determinants on learner performance in the 11 African countries that participated in the 1999 MLA surveys. For each country, the results are presented individually using the respective path diagrams to illustrate the significant and non-significant causal relationships. In these diagrams, solid lines represent statistically significant paths while broken lines represent paths that are not statistically significant. In Appendix E, the direct, indirect and total path coefficients are given for each country as well as the matrix of correlations between all the constructs used in the model. Some details on the measurement model and the structural equation model of the LISREL analysis for each country are also reported in Appendix E. Finally, some global as well as some country-specific trends from the results of these LISREL path analyses are reported.

BOSTWANA

The LISREL results from Botswana indicate that the predictors used in the model are capable of explaining some 20 percent of the variance in learner performance. It also shows the indirect and total effects of some key predictors of learning achievement, namely the family education level and the type

and location of schools. The results from the path diagram in Figure 5:2 may be summarised as follows. The strong impact of the home environment on learner performance in Botswana is manifested through the influence (direct, indirect and total) of learner's family education level and home background characteristics. These findings support the fact that quality education for all cannot be optimally achieved without improvement in the home environmental conditions of learning. A similar trend is observed on the influence of school conditions of teaching and learning. In this model, the type and location of school, as well as the school learning environment, are important determinants of learning achievement. The assessment practices of teachers as well as learner opportunities to do their homework are significantly associated with leaerner performance. Last, it is important to note that the age and gender of the learners affect their performance in that girls and younger children in the population tested performed better than their counterparts, boys and older learners. The following diagram (Figure 5:2) shows the model and the path coefficients for Botswana.

FIGURE 5-2: BOTSWANA - LISREL ANALYSIS ON DETERMINANTS OF LEARNER PERFORMANCE

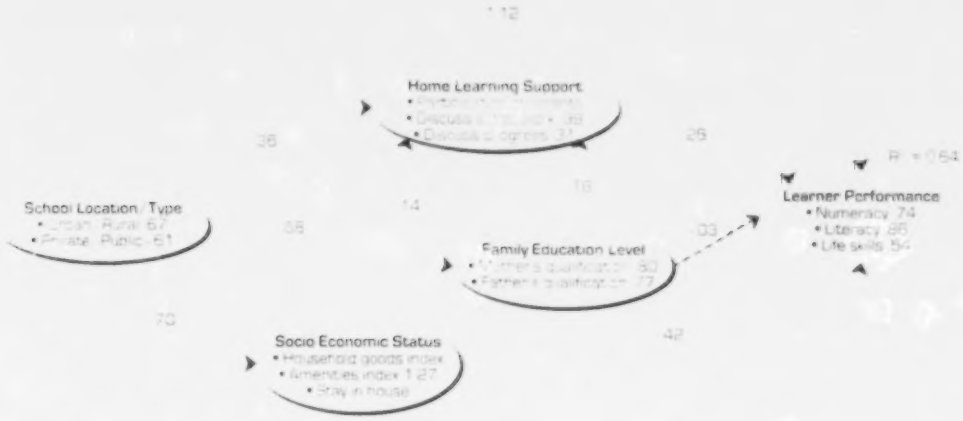


MADAGASCAR

The LISREL path analysis on the Madagascar data is revealing in many ways. Only five constructs (latent variables) from the global model are retained for this analysis. Besides learner performance scores, the four predictors are: location and type of school; the learners' socio-economic status; home learning support and family education level (Figure 5:3). These four predictors explain as much as 64 percent of the variation in learner performance. As shown in the Appendix E there is a problem of multicolinearity, namely high correlation between some of the predictor constructs, specifically between school location and type and socio-economic status. Since this may affect the whole analysis, the results from Madagascar must be treated with some caution. Much of the variation in learner performance emanates from the school environment and mediates through other predictors (direct, indirect and total causal effects) which are all captured by the differences that are due to school location and type. It is equally important to note the negative influence of socio-economic status, home learning

support and family education level on learner performance, which is caused by the problem of multi-colinearity.

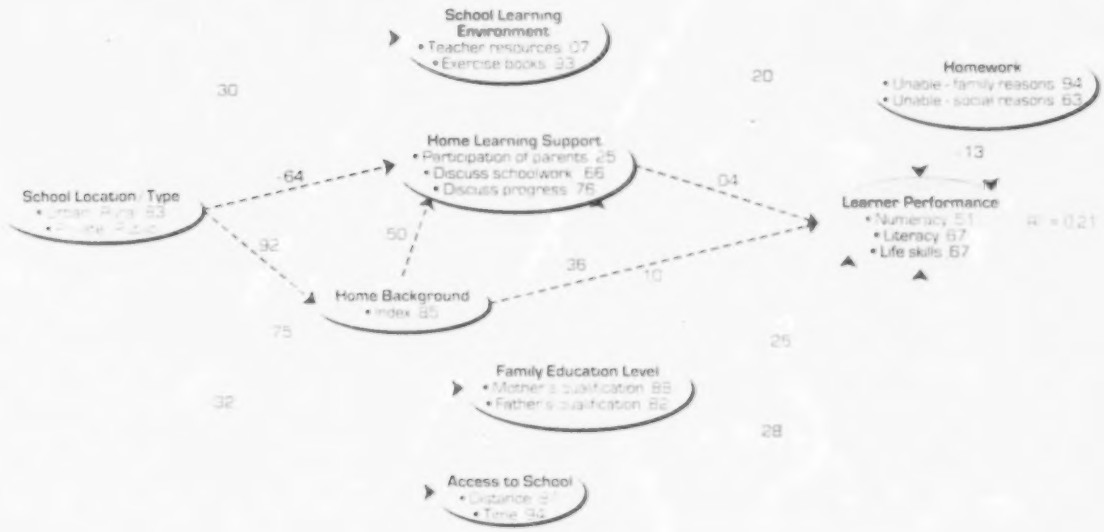
FIGURE 5-3: MADAGASCAR – LISREL ANALYSIS ON DETERMINANTS OF LEARNER PERFORMANCE



MALAWI

The Malawi LISREL model explains 21 percent of the variance in learner performance (Figure 5.4). Several constructs (latent variables) from the global model could not be retained in the Malawi model, namely socio-economic status, safety and security at school; attitude to school and teacher; assessment practices; home learning environment, and the characteristics of learners, their teachers and classroom. However, the determinants of learner performance in Malawi re-emphasise the importance of the home environment of learning through the very strong impact of family education level and home background characteristics. The school characteristics occupy an equally important place in determining learning achievement, namely through school location and type; the distance and time to

FIGURE 5-4: MALAWI – LISREL ANALYSIS ON DETERMINANTS OF LEARNER PERFORMANCE

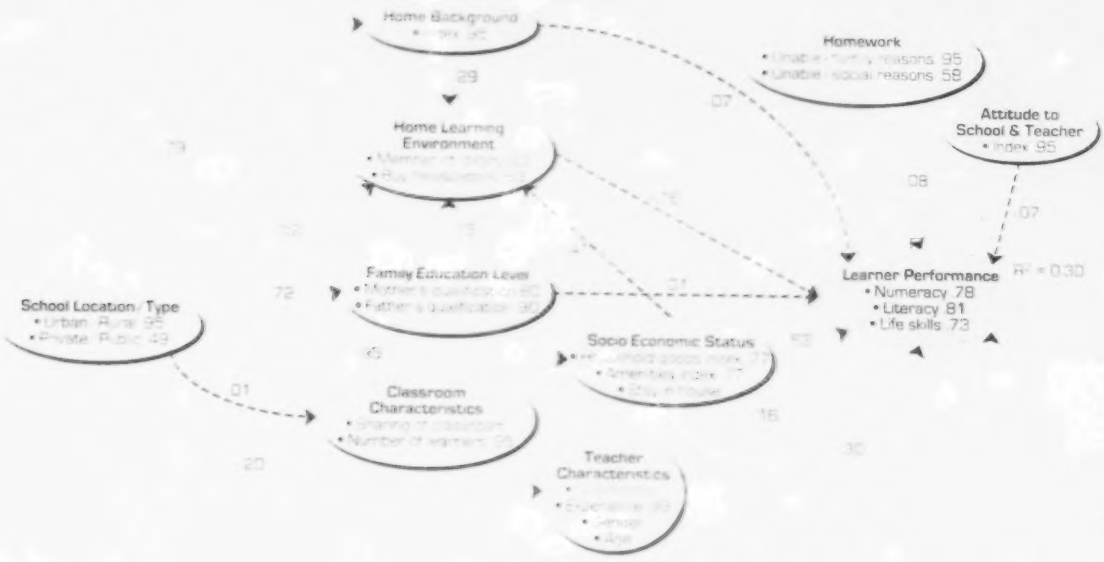


get to school; and the school learning environment. The latter is measured by teachers' access to instructional learning materials and infrastructures (chalk, wall-charts, exercise books and other learning aids). It is also important to note the causal influence of possibilities to do homework on the learner performance in Malawi. Again and again, the inter-relationships between the school and the home characteristics, contexts and processes are found to jointly predict differences in the learning achievement and quality of education as a whole.

MALI

The results from the LISREL path analysis in Mali are presented in Figure 5.5. The variables selected for the LISREL model explain 30 percent of the variation in learning achievement of the Malian learners . The Mali model consists of more than half of the predictors of learning achievement selected from the global analysis. It is important to note that the predictors are from all four sources of information, i.e. questionnaires of the learners and their parents, teachers and school head teachers. The most striking findings from the analysis in Mali are the very strong influences of socio-economic status, school location and type and teacher characteristics on learner performance. Although not the result of direct causal effects, the level of education of the family and the home background characteristics have some indirect and total causal effects on learner performance. A similar feature can be associated with the strong indirect and total causal effects of school location and school type on learner performance as mediated through the other predictors of the LISREL model in Mali. Having more opportunities for doing homework also influence learner performance. Finally, the importance of favorable classroom conditions and characteristics of the teaching-body on learner performance in Mali must also be considered.

FIGURE 5-5: MALI- LISREL ANALYSIS ON DETERMINANTS OF LEARNER PERFORMANCE

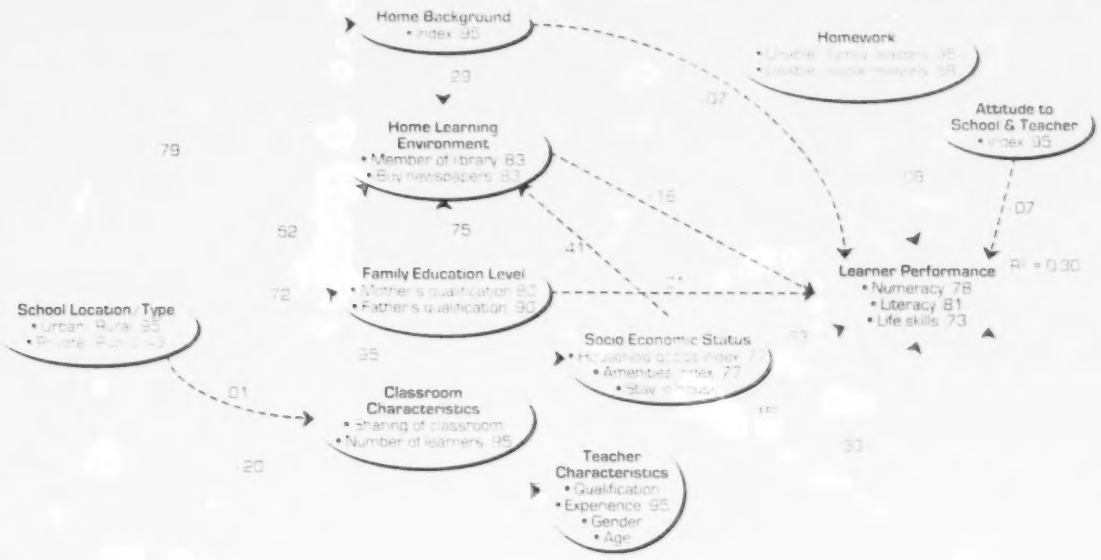


MAURITIUS

The results from the LISREL path analysis together with the path coefficients are given in Figure 5.6. The Mauritius model is more or less a full model as only five of the constructs from the global model, namely attitude to school and teacher; learner characteristics; socio economic status; chalkboard and

school learning achievement could not be retained for the LISREL analysis. The Mauritius model explains 44 percent of the variation in learner performance. The following trends are being observed. First, the three most powerful predictors of learning achievement based on the 1999 MLA survey in Mauritius are the education levels of the family, the location and type of school and the opportunities for doing homework. Second, unsafe circumstances for teaching and learning as measured by the construct school safety and security seem to have a significant influence on learning achievement and quality of education as a whole. Third, the importance of reading resources on learning achievement as measured through the home learning environment construct deserves special attention. Lastly, several other predictors, namely the characteristics of teachers, classroom and homes, the assessment practices, home learning support and access to school show themselves as weak predictors of learning achievement in Mauritius.

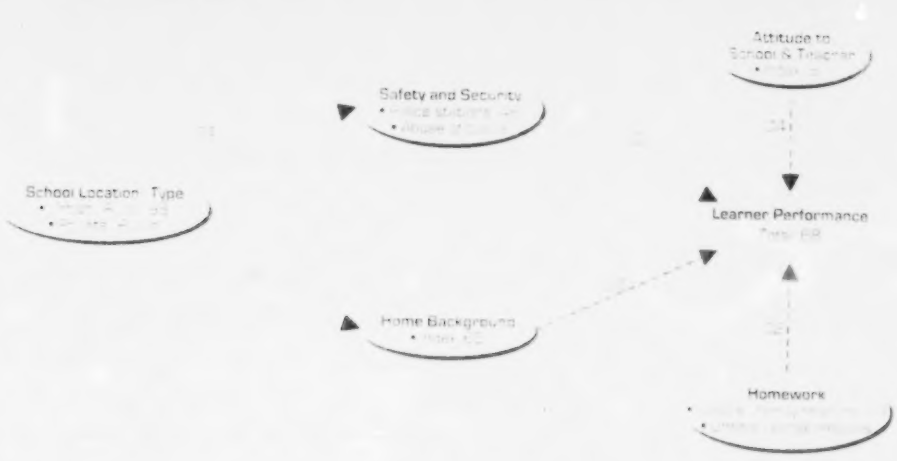
FIGURE 5-6: MAURITIUS- LISREL ANALYSIS ON DETERMINANTS OF LEARNER PERFORMANCE



MOROCCO

As shown in Figure 5:7, the LISREL model in Morocco consists of only a few predictors of learner performance. There are only five of them: (1) the location and type of school; (2) home background of learners; (3) school safety and security; (4) learner's attitude to school and teacher; and (5) homework. These five predictors explain 23 percent of the variation in learner performance in the 1999 MLA survey in Morocco. It is important to note the following trends from the Moroccan path analysis. First, the variation in learner performance is very strongly determined by the nature of the safety and security in Moroccan schools. Second, much of variation in learner performance that is due to other predictors is mediated strongly through the location and type of schools attended by the learners in Morocco. Third, the home background characteristics of the learner play an important role in her/his learning achievement. Finally, weak but equally significant are opportunities for doing homework and learner's attitude to school and teacher.

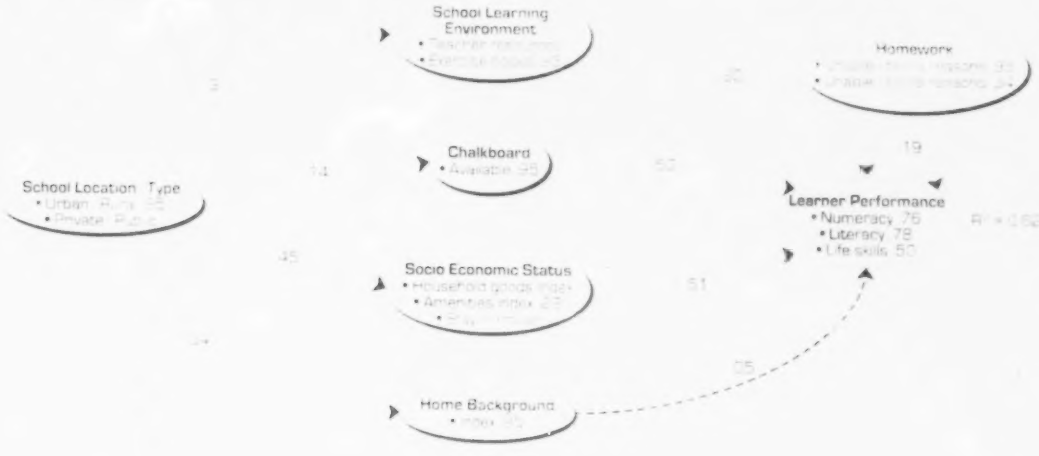
FIGURE 5-7: MOROCCO- LISREL ANALYSIS ON DETERMINANTS OF LEARNER PERFORMANCE



NIGER

The determinants of performance in Niger emanate mostly from the home and school environments of learning. Unfortunately, predictors such as the characteristics of learners, teachers, classroom as well as the process variables, namely assessment practices, access to school and learner's attitudes to school and teacher could not be used in the Niger model. The six predictors in the Niger LISREL model explain as much as 62 percent of the variation in learner performance. It is striking to observe such high causal effects, namely the very strong influence of socio-economic status variables and the availability of chalkboard on learning achievement. Likewise, the availability of learning and teaching resources (exercise books, chalk, wall charts and other learning aids), the opportunities to do homework, the home background characteristics of the learner and the location and type of school attended are important determinants of learning achievement in Niger.

FIGURE 5:8 NIGER - LISREL ANALYSIS ON DETERMINANTS OF LEARNER PERFORMANCE

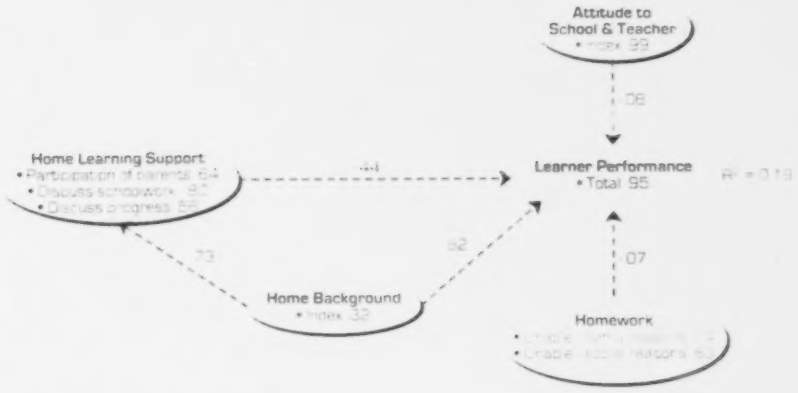


SENEGAL

The global model for the analysis on the determinants of learner performance has been less successful in the 1999 MLA data from Senegal. Only five constructs could be retained for the LISREL analysis.

They are learner performance and the four predictors namely, home learning support, home background characteristics, attitude to school and teacher and the opportunity to do homework. The results are shown in Figure 5:9. Altogether 19 percent of the variation in learning is accounted for by these four predictors. None of the paths in this model are statistically significant and the interpretation should therefore be read with some caution. The rather strong influence of home learning support on learner performance measured by how often parents participate in school activities; how often they discuss the child's progress with the teacher; and how often they discuss schoolwork with their children deserve some special consideration. These can boost the parent-child relationship in teaching and learning at home in view of the goal of quality education for all. Equally decisive are the opportunities made available to the Senegalese children for doing their homework. These in turn, may affect their attitudes to school and to their respective teachers which may also be determined by a number of socio-economic, educational and cultural factors. Finally, the results from the Senegalese LISREL analysis show the importance of learner home background characteristics on learner performance on the one hand, and as mediators of other predictors (indirect and total causal effects) on other hand. The home background characteristics of the Senegalese children remain therefore the most powerful determinants of learner performance.

FIGURE 5:9 SENEGAL - LISREL ANALYSIS ON DETERMINANTS OF LEARNER PERFORMANCE

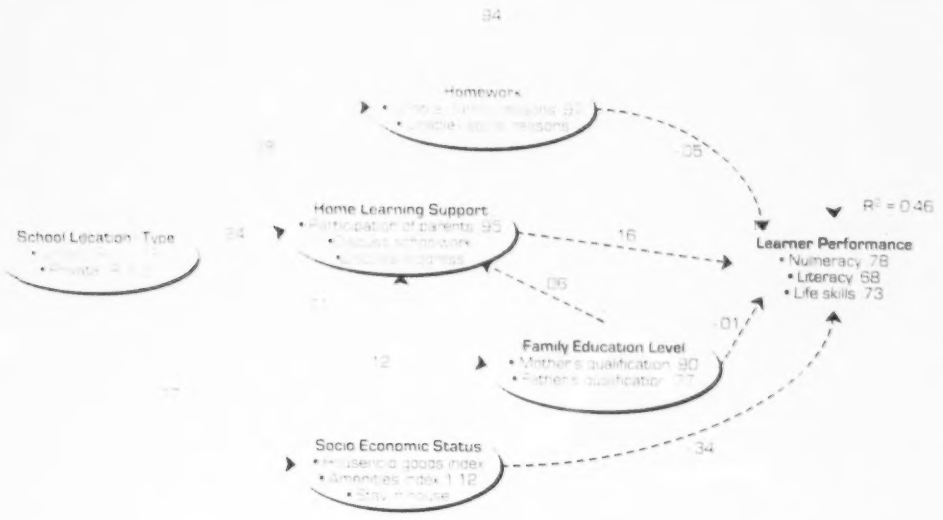


TUNISIA

It can be observed from Figure 5:10 that only six constructs from the global model were retained for the LISREL analysis for the 1999 MLA survey data in Tunisia. However, the five predictors, namely school location and type; socio-economic status; home learning support; homework and family education level explain as much as 46 percent of the variation in learner performance of the Tunisian learners. The strongest predictor of learner performance in the Tunisian model (direct, indirect and total causal effects) is the location and type of school. The rather high causal effects of this predictor on learner performance in Tunisia demonstrate the fact that attending or not attending the right school is the principal source of success and henceforth impacts on the quality of education offered. The socio-economic status of learners has a non-significant and negative effect (unexpected) on learner performance, but this is possibly due to its high correlation with the location and type of school (some degree of multi-colinearity). The same can be said for the influence of the family education level. Taken together with the influence of the home learning support, the possibilities offered for homework at home

and the educational level of the family, it is possible to argue that the home learning environment play an equally important role as the location and type of school attended for learning achievement and quality of education, in general.

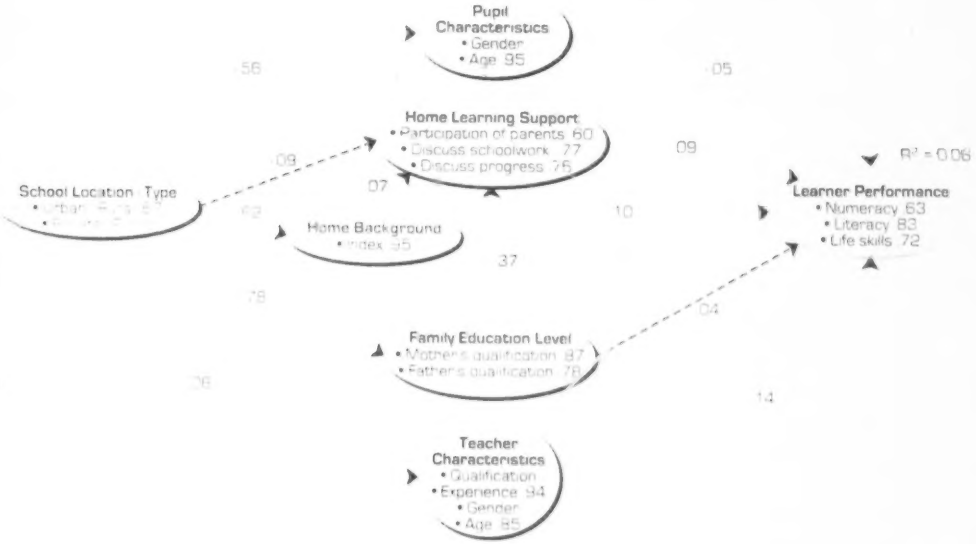
FIGURE 5:10 TUNISIA - LISREL ANALYSIS ON DETERMINANTS OFLEARNRE PERFORMANCE



UGANDA

The results from the LISREL analysis of the 1999 MLA survey in Uganda are presented in Figure 5:11. The striking feature of these results is that only 6 percent of the variation in learner performance is explained by these 6 predictors, namely the location and type of school, the home background characteristics, the home learning support, the family education level, the characteristics of learners and the characteristics of their teachers. However, several important trends can be seen from these results.

FIGURE 5:11 UGANDA - LISREL ANALYSIS ON DETERMINANTS OF LEARNER PERFORMANCE

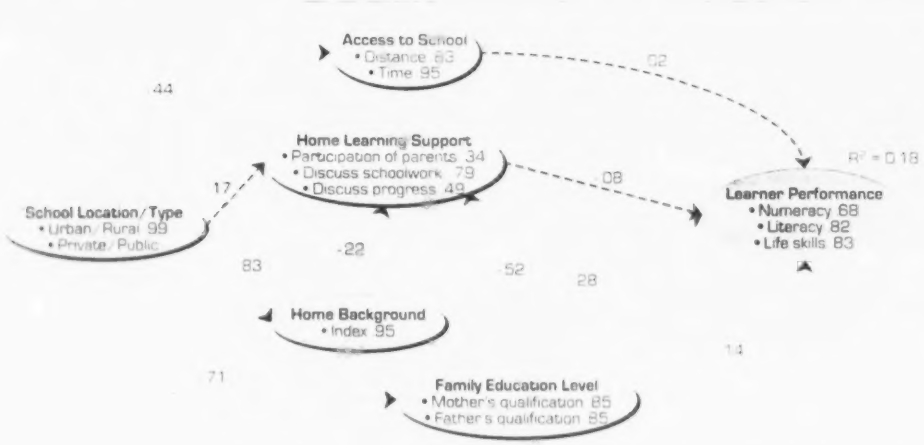


First, attending a given type of school in a certain locality contributes significantly to learner performance. Although this predictor does not display a statistically significant direct effect, it plays an important mediating role (indirect and total) through the other predictors of learner performance. Second, without the path analysis, the importance of the location and type of school on learner performance in Uganda could have been easily overlooked. Third, some of the variation in learner performance is due to the characteristics of the learner, her/his teacher and her/his home background. Having a conducive environment at home; having higher qualified and more experienced teachers, and being specifically young, characterise the higher achievers in the 1999 MLA survey in Uganda. Finally, both the education level of the family and the positive support for learning at home contribute in boosting learner performance in Uganda.

ZAMBIA

The 1999 MLA survey data from Zambia clearly demonstrates that learner performance is determined by just few of the predictors identified in the global model (Figure 5:12). However, the five predictors, namely the location and type of school; access to school; home background characteristics; home learning support and the educational level of the family account for 18 percent of the variation in learning achievement of the Zambian learners. The strongest determinant of learner performance in the LISREL analysis in Zambia is the location and type of school, which in fact has strong indirect and total causal effects. These effects are henceforth mediated via the other predictors in the Zambian LISREL model, namely access to school. Equally important are the home background characteristics of learners that have the strongest direct effects on their learner performance. This evidence is also supported by the significant influence of the education of the family and the support to learning at home on learner performance. Lastly, the results from the Zambia LISREL analysis clearly indicates the importance of home learning on learner performance.

FIGURE 5:12 ZAMBIA - LISREL ANALYSIS ON DETERMINANTS OF LEARNER PERFORMANCE



THE REGIONAL ANALYSIS: SIMILARITIES AND UNIQUENESS

In this section, an attempt is made to examine the causal effects from the predictors of learner performance across all the 1999 MLA survey countries in Africa with a view to identifying common and

specific areas of interventions. This analysis could contribute to informed decision-making at different levels and among different partners of Education For All and should lead to improvement in learner performance and in the long run, to the achievement of quality of education for all in Africa.

The results for the regional analysis are presented in Table 5:2. All the determinants of learner performance are presented in relation to their respective total causal effects (direct + indirect) on learner performance in the separate LISREL model for every country. This summary table serves the main purpose of understanding the educational realities in the 11 African countries surveyed in 1999, and the lessons to be learnt when using such a broader perspective (LISREL path analysis) to uncover the complexities of the conditions for teaching and learning and their impact on the African learners' opportunities and performance. This section will directly contribute to the between- and within- countries' analyses performed in the earlier chapters of this book. Knowing the root-causes of between- and within- disparities in the quality of education offered in Africa and elsewhere hardly pre-occupy those who do not convincingly argue for learner-centred education, the reason why so little is known or made known in this field.

TABLE 5:2 DETERMINANTS OF LEARNING ACHIEVEMENT - COMMON AND UNIQUE FEATURES IN 11 AFRICAN COUNTRIES

	Botswana	Madagascar	Malawi	Mali	Mauritius	Morocco	Niger	Senegal	Tunisia	Uganda	Zambia
SLT	0.16	0.71	0.23	0.39	0.43	0.39	0.11	-	0.63	0.15	0.35
AS	0.00	-	0.28	-	0.03	-	-	-	-	-	0.02
HBG	0.13	-	0.12	0.11	0.09	0.38	0.05	0.30	-	0.11	0.30
AP	0.17	-	-	-	0.03	-	-	-	-	-	-
FEL	0.21	0.09	0.23	0.11	0.49	-	-	-	0.02	0.07	0.19
HLE	0.02	-	-	0.16	0.17	-	-	-	-	-	-
HLS	0.05	0.26	0.04	-	0.03	-	-	0.44	0.16	0.09	0.08
ATT	0.01	-	-	0.07	-	0.04	-	0.06	-	-	-
SLE	0.09	-	0.20	-	-	-	0.30	-	-	-	-
LC	0.13	-	-	-	-	-	-	-	-	0.05	-
CHB	-	-	-	-	-	-	0.53	-	-	-	-
HW	0.14	-	0.13	0.08	0.22	0.02	0.19	0.07	0.05	-	-
TC	0.01	-	-	0.30	0.01	-	-	-	-	0.14	-
CC	0.03	-	-	0.16	0.04	-	-	-	-	-	-
SS	-	-	-	-	0.19	0.80	-	-	-	-	-
SES	-	0.38	-	0.56	-	-	0.51	-	0.35	-	-

School Differences

The main lesson that can be drawn from Table 5:2 is that the determinants of learner performance behave differently (in strength and in commonality) across the 11 MLA countries surveyed in 1999. This finding enriched the earlier ones in that it points out the importance of country-specific policies for Africa when dealing with quality of education for all. The second most striking finding from this analysis is the consistent results (10 out of 11 countries) concerning the strong impact of school location and type (SLT) on learner performance and the important role this predictor plays as a mediator for other predictors in the model. This finding reinforces the earlier findings from the within-country analyses, namely that quality education for all can only be guaranteed when such structural disparities (urban

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versus rural; and private versus public) are seriously addressed and eliminated over time.

Importance of the Family

Likewise, the results from the regional analysis clearly indicate that the home environments of learning represented in terms of the education level of the family (FEL), the home learning support (HLE) and the home background characteristics of learners (HBG) have powerful influences on learner performance across the majority of 11 African countries surveyed. This finding is consistent with most school surveys carried out in developed and in developing countries over the past 40 years. Improving the level of education of the family in Africa through adult literacy programmes and other forms of life-long learning could improve the quality of education in general and learner performance in particular. Further, this investment may also help improving the home learning conditions, processes and characteristics for the African child, factors which strongly influence learner performance in most of the countries surveyed.

Homework Opportunities

An important factor which consistently influences learner performance in 8 out of the 11 countries surveyed is the opportunities available at home for the child to do her/his homework (HW). This finding reveals that the family and the educational stakeholders need to facilitate learners in doing their homework while reducing the time spent in helping the family with other home duties and responsibilities. It was also found that the opportunities to do one's homework are conditioned by the educational, social, economic and cultural environments of the learner and family environment, which altogether have important direct, indirect and total causal effects on learner performance.

Unique and Differing Impacts

As mentioned earlier, the purpose in this section was also to indicate some uniqueness in the regional analysis of determinants of learner performance. From Table 5:2, it is possible to observe that several determinants appear only in few countries but also indicate their uniqueness in the global model. The following 8 predictors from the global model have significant effects on learner performance in 4 or less countries out of the 11 ones surveyed. These results can be used also to account for the degree of importance of the different predictors in the global model. The predictors are presented here in order of their relative importance, i.e. the strength of the total path coefficient and its frequency across the 11 countries surveyed: (1) socio-economic status (SES); (2) access to school (AS); (3) attitude to school and to the teacher (ATT); (4) teacher characteristics (TC); (5) home learning environment (HLE); (6) school learning environment (SLE); (7) classroom characteristics (CC); (8) school safety and security (SS); (9) assessment practices (AP); (10) learner characteristics (LC); and (11) availability of chalkboard (CHB).

CONCLUSION

The striking feature of these unique and different impacts is that it also indicates the extent to which the predictors behave differently among 11 countries and how they deviate from the global model of determinants of learner performance. Two important patterns must be mentioned, the first related to the amount of variance explained by each country model, and second, the number of significant predictors in each country model. In 4 out of the 11 countries, more than 40 percent of the variation in learner performance is explained. They are Madagascar, Niger, Tunisia and Mauritius. The 3 countries for which less than 20 percent of the variation in learner performance is explained are Uganda,

Zambia and Senegal while for the remaining 4, between 20 and 40 percent of the variation is explained. The second pattern, namely the frequency of the 16 predictors, also show three major trends. The first trend shows countries with 5 and less predictors of learner performance (Senegal, Madagascar, Morocco, Tunisia, and Zambia); the second one with more than 5 but less than 10 predictors (Niger, Uganda, Malawi, and Mali) and the third pattern with the remaining 2 countries (Mauritius and Botswana) with 11 and 13 predictors respectively. It should be noted that these patterns also tindicate that too many predictors may not mean much more variation in learner performance, as is the case of Botswana and Niger.

The analysis in this chapter provides further detail information on various aspects in the different countries that impact on learner performance in schools. This information is a rich source of ideas and suggestions for the development and implementation of relevant guideline and policies towards the provision of Quality Education for All. Further analysis of the data will be presented in the forthcoming national, sub-regional and international reports devoted to the MLA project and to the MLA movement as a whole.

CHAPTER 6:
AGENDA FOR ACTION

A nation's capacity to provide an education of quality to all its citizens will depend more than ever upon its success in guaranteeing a defined and acceptable minimum level of learning experience for all irrespective of their gender, regional, socio-economic and cultural differences or disparities. Human rights to a minimum quality of basic education for all in Africa remain the main concern of the MLA project.

Providing universal access to basic education opportunities and at the same time ensuring that the basic learning competencies of all learners are met, still remain distant targets for most African educational systems. These ever-lasting challenges are not always studied empirically. From the Jomtien perspective, an assessment of learner performance across gender, regional and school environments is more of a necessity than simply a need for stocktaking. Therefore, Africa has a unique and historical opportunity to raise its voice at the dawn of the 21st century with an assessment of the quality of education for all.

To date, there is not a single comparative study of basic education in Africa. The 1999 MLA African Surveys simultaneously assess learner performance from the viewpoint of what is taught and learnt in and out of schools. The MLA surveys were intended to complement other assessment methods, but not to replace them. For this very reason, basic learning competency levels were established for the three learning areas of Literacy, Numeracy and Life Skills. This regional survey has therefore opened up the terrain of 'learner performance' for analysis by providing the mechanism for the assessment of a minimum mastery level of knowledge, skills and competencies of learners (MML) as compared to the desirable mastery level (DML) to be reached by all, using a criterion-referenced testing approach.

Despite tremendous efforts made since the 1960s, the inherited educational backlog of the majority of African countries has neither been adequately redressed, nor sufficiently improved in qualitative terms. These countries have not conceived of policies that emphasise the provision of equal educational opportunities for all, as equity-quality trade-offs have not yielded optimal results in most African educational systems. Success in striking the optimal balance between equity and quality education for all is often obscured by the quantitative number game agenda that overlooks educational inequalities.

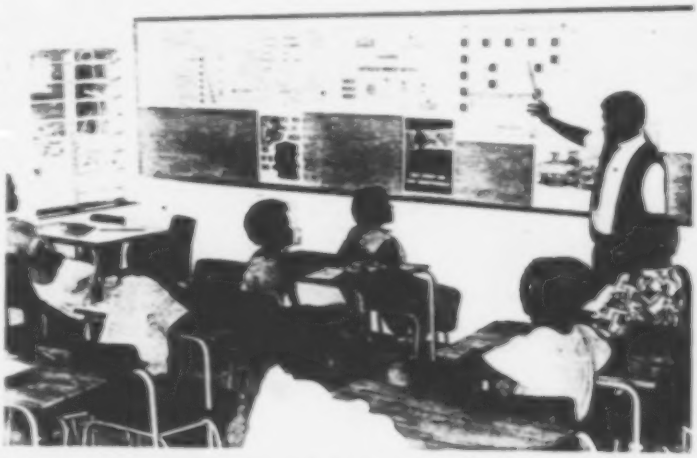
An attempt has been made in the MLA Surveys to provide some empirical evidence that points towards country-specific educational policies and strategies so as to meet the needs of African learners. In doing so the MLA surveys move a step further towards identifying the probable reasons of good or poor quality of education for all. The MLA movement is based upon the conviction that the comparisons of learner performance across the African countries surveyed in 1999 will lead to a better understanding of how each country fared in improving learners' knowledge, skills and competencies.

The results indicate that the most salient feature of any single or composite indicator of African education development is the marked between- and within- country differences. This aspect is underestimated in most regional or comparative educational surveys and research studies. In order to ensure that both aspects of equity and quality of educational opportunities are assessed, the MLA project has explored the patterns of learner performance profiles across the region. For the majority of African children, many structural and personal factors work against an equal quality of learning for all. At the same time, the analysis of the conditions of teaching and learning indicate that there are clear indicatives trends of African educational success. Since learners differ in many ways as individuals, at home, at school and at community level, the main tasks of the educational system and sub-systems should be to adapt teaching and learning in order to meet the different needs and opportunities of all learners.

The main policy themes arising from the surveys are reflected in the following set of recommendations towards an agenda for action. It should be noted that the data analysis and report-writing phases of all the African MLA 1999 country surveys are not yet completed and could not be included in this report.

QUALITY OF EDUCATION FOR ALL CAN BE ATTAINED

African education systems have so far unsuccessfully attempted to maintain a balance in the trade-off between equality of educational opportunities and quality learning. The tendency of African education has been to contribute to elite formation rather than to reach the marginalised masses of learners. To aggravate matters, frequent borrowing of 'standard' models of education do as much harm as good to learners if measures are not designed to address country-specific issues. Within the generic framework of quality education for all, mastery learning can serve the purpose of steering a path that safely avoids the pitfalls identified here.



"Mastery learning" as such, is neither a new concept nor a revolutionary one. However, it needs to be optimally used in order to guide intervention in areas such as: assessment, curriculum reforms and improvement in teaching and learning, just to mention a few. Mastery learning can ensure quality learning through continuous monitoring and application of appropriate corrective measures and can assist in reaching the often marginalised mass of learners who become forced 'failures' and 'drop-outs' of African education systems. Ensuring the minimum mastery level of learning (MML) for all should be the first step towards excellence and the attainment of desired mastery level of learning for all (DML). Therefore, one major policy observation can be drawn from the above mentioned findings. Quality of education for all in Africa is no longer a dream. It is an attainable reality, provided that genuine efforts can be made to address the problems of educational access and minimal educational treatment as well (e.g. provision of an adequate qualified and stable teaching-force; maintenance of minimal health, food, and library services; and improvement of basic school facilities). It is in the light of the above that between - and within - country differences in learning can be successfully eliminated or reduced.

The DMLs' of the respective countries generated in this study may provide us an indirect measure of how achievable this target can be - if all the external and pedagogical conditions are optimally met. With the few exceptions 9 out of 10 learners surveyed in the participating countries have not yet reached the desired levels of mastery learning. However, the path to achieving improvements in quality teaching and learning is implicit in the mastery learning approach of the MLA surveys. The results of the surveys may serve as root sources of policy relevant information that will contribute to progressive gains in learner performance. In this way also, gains in educational quality can be understood and treated with reference to performance in other pertinent areas such as politics, history, economy, culture and demography.

IMPROVING AND SUSTAINING MINIMUM LEVELS OF MASTERY LEARNING

The experience from earlier MLA surveys in some fifteen developing and developed countries during the period 1992-1998 showed one major consistent pattern of learner performance across the three different learning areas, namely that learners' performance in Life Skills was much higher than their corresponding performance in Literacy and in Numeracy despite continuous historical, socio-economic, cultural and educational development. The findings from the 1999 MLA surveys in Africa show a similar pattern to the ones observed previously.

In the Numeracy learning area, not a single country has reached the Jomtien target, while more improvement will be needed in both Literacy and Life Skills. It must be stated that in spite of these findings, reaching an acceptable quality of education for all - the Jomtien 80% target - is not an impossible task in Africa. The evidence does show that some countries in this study have even gone beyond that target, others are coming closer, while a few still have a long way to go. The primary aim should be improving and sustaining a minimum level of mastery learning in all learning areas and at all Grades.

RECOGNISING SPECIFICITY IN LEARNING ENVIRONMENTS

In terms of the analytical approach adopted in the MLA framework, it was expected that some common as well as specific patterns would be observed across the different learning areas of the 11 participating African countries. Through a focus on the unique and complementary patterns in the findings for the three different learning areas, the information obtained has the potential to support improvements in assessment practices, teaching-learning processes and curriculum development.

The results of the current study show clearly that all countries have a high between-learner performance difference in Numeracy and Literacy, while nearly half of them have much lower differences in Life Skills. In the latter case, the results of the previous MLA surveys are again confirmed. There are smaller differences between learners from the different countries in terms of their performance in the Life Skills learning area than in the Numeracy and Literacy learning areas. These salient features from the regional analysis further support reservations expressed about many rigid across-the-board applications of education policy "solutions" in Africa. Unfortunately, this policy rigidity continues to persist through support from both external and internal educational role players.

The inconsistent patterns of learner performance observed across the countries and between the three different learning areas point at one constant. More attention should be given to curriculum planning,

teacher education and training, and textbook development to identify selected areas for intervention. Teaching and learning outcomes are not only influenced by the specificity of a particular country, its teachers and learners, but equally by the specific characteristics of each and every learning area.

UNDERSTANDING THE DYNAMICS OF TEACHING AND LEARNING

The empirical evidence obtained from this regional 1999 MLA survey offers serious challenges to contemporary pedagogy, learning and education as a whole. It addresses serious concerns about the state of comparative educational research and studies. For the sake of learners, systematic and continuous learning assessment schemes are needed in most educational systems at all educational levels and in all the learning areas and domains in order to capture - and meet - their varying needs and difficulties. Failing or passing learners does not justify what is learnt and what is not learnt. There is a need to understand the dynamics in teaching and learning so as to establish what must be taught and how each learner must be better prepared to optimise her/his learning potential and attributes.

Quality education for all can only be ensured on the condition that all educational role-players fully understand the dynamics of the teaching-processes where learners remain at the centre as targets for any intervention, be it at the curriculum, teaching, and learning environment level. In a similar vein, enormous efforts are needed to have a stable, qualified, better rewarded and less mobile teaching-force. Critical problems such as scarcity of teaching and learning resources, multiple school shifts, large class size, long distances to school and so on must be seriously re-addressed. Most of the 1999 African MLA countries surveyed suffer from a lack of such basic and fundamental needs that must be met to attain a reasonable quality of education for all in the 21st century.

CHALLENGE OF ACHIEVING GENDER PARITY

Pointers and recommendations for gender parity in quality basic education for all in Africa are many as evidenced through the 1999 MLA African survey results. Gender parity in learner performance at the lower grades of basic education is an achievable goal. Gender differences are statistically non-significant in the majority of the reported observations across countries and by learning areas. One of the greatest challenges for girls and women education in the 21st century Africa, is the necessity to replace the vision of gender parity for all types and forms of education with the reality. As shown from the results of the 1999 MLA surveys in Africa, there is a great need to have more women in educational administration, planning, and managerial positions. All these may represent an ever-lasting value added to African education and to humankind as a whole.

REDRESSING URBAN AND RURAL DISPARITIES

Urban-rural parity in learner performance must remain a top-priority policy intervention in all countries surveyed. It would not only enhance parity, but would also create the value that is added in order to success-

fully reduce, among other things, the existing gender and socio-economic inequalities of Africa's present children, future youth and parents. A striking finding from Chapter 6 (providing detailed analyses of the factors that influence learner performance) was the consistent results concerning the strong impact of school location and type on learner performance, and the important role this predictor plays as a mediator for other predictors in the conceptual model. Revitalising Africa's educational hopes must go hand in hand with appropriate corrective measures for redressing urban-rural disparities in learner performance, while simultaneously boosting education growth in both quantitative and qualitative terms.

ADAPTATION OF SCHOOLS TO THE NEEDS OF CHILDREN

The adaptation of schools to children instead of the adaptation of children to schools, is an indisputable challenge of quality education for all. This must be re-addressed and further emphasised by educational planners and front-line educational agents of change and innovation. School effectiveness may not always need as many additional economic resources as compared to the different soft resources - such as discipline, working in a reinforcing collective milieu, partnership and commitment to guarantee excellence, and conducive managerial leadership – which can enhance learning. Private schools often have the advantage of having both the additional economic and soft resources. Learning from what makes schools more effective may serve to reduce differences in performance observed between learners attending public schools and learners attending private schools.

A critical example of how learners are forced to adapt to the school – rather than vice-versa - can be found in school language policy. Where the home language is the same as the language of instruction, learning is reinforced directly. The learner can freely communicate what she/he has learned at school in the home environment and her/his learning is more likely to be directly reinforced through interaction with all members of the family. Yet, for all the countries participating in the 1999 MLA study, the overwhelming majority of learners - between 75% and 90% - have to learn in a language other than their home language.

DECISIVE ROLE OF THE HOME LEARNING ENVIRONMENT

Evidence from the 1999 regional survey in the 11 African countries consistently shows the decisive role that the home learning environment can play in determining the level of learner performance. The various home factors that influence learner performance are those which are tightly related to the educational levels of parents, which in turn, affect the kinds and types of learning processes the learner is exposed to at home. For example, the access to basic learning needs and facilities such as having regular meals, basic reading resources; family support with homework assignments; and family involvement in school-related activities.

A reinforcing literate home environment can enhance learner performance and quality of education for all. It is not enough to assume that learning takes place only within the four walls of the classroom. The march for quality education for all can only be achieved if parents and communities are empowered to play the role they can and should in this process. Therefore providing life-long learning opportunities, especially to those parents who are relatively uneducated or hardly educated, is a precondition for the attainment of quality education for all in Africa. Without these opportunities, the nature and scope of existing generation gaps in educational access and educational quality will just perpetuate across African families and the future generations.

LIMITATIONS

This report is evidence of the success with which the MLA concept has been adopted and implemented in 11 African countries in 1999. The accomplishments achieved by the MLA participants and the contribution of the project to improving education in the Africa Region will be important landmarks into the future. Notwithstanding the successes, it is important to reflect on possible limitations in order to understand the broader context of the project and also to strategize around possible ways of improving it from the standpoint of conceptualisation, design, methodology and implementation. The following issues are raised in this spirit:

- The primary aim of the report was to provide a regional picture of the performance of learners and the factors that impact on this process. Therefore, detailed analysis of the specific features of the country data sets could not be completed in a comprehensive way. However, it is expected that more in-depth studies that follow-up on, or supplement the findings in this report will form the basis of sub-regional and national reports. This potentially rewarding challenge rests primarily with the various national task teams.
- The methodology applied in this project was primarily quantitative. Thus aspects of this project for which qualitative methods such as observing learner-teacher interactions could not be addressed. The results of the 1999 MLA national surveys, however, provide indications that can serve as possible starting points for national task teams to design and carry out qualitative-oriented research that may illuminate the quantitative MLA findings.
- Most of the instruments in the MLA surveys were administered in English or French. It must be acknowledged that these languages are for many learners their second or even third language. The fact that the majority of learners were not tested in their mother tongue could have major impact on the learner performance scores.
- All the information in this survey was collected through the paper and paper modality. It is, however, possible that the use of an oral modality could have yielded different results., especially in the context of African society which has such a rich history of oral tradition.

The 1999 MLA projectmust be viewed as a first step towards the systematic evaluation of the Education For All goals set in Jomtien in 1990. As such, it may represent the strategic launching point that participating countries should utilise for strengthening and improving their education assessment systems for the future.

GENERAL RECOMMENDATIONS

The MLA is an ongoing project and has a strong developmental imperative in terms of its focus on assessing the goals of Jomtien. A project with the size and potential scope of the MLA is in itself in a process of development. Therefore, the following recommendations are made towards strengthening of the project and increasing its impact and success rate in the African continent.

- Bearing in mind that the 1999 MLA project is a step in a continuous and evolving process, the emphasis should be on looking forward to the main challenges of the next decade. It is recommended that the two main areas for emphasis should be : (a) to advocate for the MLA to be conducted in all African countries by the end of the next decade and (b) to work at improving on the current 1999 study in terms of continuously improving the methodology right through the project cycle and maximising the practical utilisation of the findings.

- The possibility of co-ordinating the MLA study with other initiatives at the national, sub-regional, regional and international levels should be pursued. For example, the synergies between MLA and SACMEQ, PASEQ, and IEA initiatives must be exploited so as to maximise the potential collective and individual contribution of the various projects.

- The continued development of the already extensive networks established to date under the MLA banner is essential with special emphasis on closer co-operation among the different countries in the region. This can be achieved primarily through the following two mechanisms. Firstly through further expansion of capacity building initiatives, and secondly through formalising and giving structure to current networks. This could be taken up by establishing a standing MLA Technical Assistance Group for the Africa region.

- Maximising resource access is a critically important function to the progress of the MLA project. This can be given considerable support through establishing and building an Africa-based 'regional resource centre' that is accessible and available to all African national education authorities. The main purpose of this centre should be to provide technical assistance in all areas relating to the provision of quality education.

- An important function underl: .ng the future success of the MLA project will undoubtedly be the dissemination of information. To this end, there are two elements that are essential. First, to assist national task teams in using and disseminating the information nationally and regionally. Second, to make data available to the broader African and international research community focussing on promoting greater use of the MLA data by African scholars and researchers. One means of achieving this aim is to establish a journal on "Quality Education for Africa". This journal can be used as a mechanism to promote the development of quality education systems in Africa as well as the development of further capacity.

CONCLUSION

The national ownership of the MLA project has become an important element of further capacity building, strengthening and sharing. It has also developed into a "think-tank" mechanism for national, regional and international networking. The optimal mobilisation of available human resource is *sine qua non* for the movement to remain sustainable. As an illustration, the present Africa regional MLA report is entirely prepared by a pool of African resource persons under the guidance and support of UNESCO and UNICEF. This Africa regional report is a direct outcome of the efforts and processes followed at regional, sub-regional, national and sub-national levels which, through intensive capacity-building mechanism moves towards the Jomtien imperatives for African learners and for African education as a whole.

"With Africa For Africa" is not only the title of an interesting story to be told and heard, but it is also a reality that all MLA teams have lived with, are living with, and will definitely live with in the future. The MLA movement can only expand because of its evident strengths. It includes among other things: an emphasis on building, strengthening, sharing and sustaining national capacities of a "critical mass" of expertise, and to address the quality of learning for all within a learner-centred approach by identifying necessary interventions in the areas of curriculum, teaching, learning and assessment. Finally, the MLA movement ensures broad-based partnerships at local, national, regional and international levels respectively.

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APPENDIX A
CONSTRUCTION OF INDEXES

As part of this MLA study, a number of Questionnaires elicited data on the schooling and learning conditions within which learner achievement was tested. The instruments which were completed by Pupils, Parents, Teachers and School Heads generated a considerable volume of data. A set of composite indicators of the teaching and learning conditions were constructed. The aim was to create a single indicator or "Index" that would 'summarise' the key information contained in a large number of variables.

In the case of each Index, the process first involved the selection of a set of variables that could be grouped conceptually. Then a set of values had to be carefully allocated to each of the set of variables in such a way that a composite indictor could be produced. An account of the rationale for and the construction of each Index is given below.

For each index, a reference to the table in which it is presented is also noted.

SCHOOL ACCESS INDEX (TABLE 4-3)

The rate of attendance of pupils at school is affected by spatial considerations such as distance to school and elapsed time in travelling to school. The "School Access Index" was calculated from pupil self reports of distance and time from school. Distance is reflected on a two point scale (<1km from school and >1km from school) and time elapsed is reflected on a five point scale (<10minutes, 10-20minutes, 20-30minutes, 30-60minutes and >60minutes). Composite scores ranging from 0 to 10 were created, where a low score implied easy access and high score implied increased difficulty in getting to school.

ATTITUDE TO SCHOOL AND TEACHER INDEX (TABLE 4-3)

Positive attitudes of pupils to their school and teachers can influence their levels of achievement. The attitudes of pupils to their school environment is elicited in a set of six agree/disagree statements that refer to pupils feelings towards: their teachers, school friends, learning and school in general. The "Attitude to School and Teacher Index" is constructed by scoring one for each positive response. It produces a range of scores from 0 to 5 where higher scores implied more positive attitudes to school.

ACCESS TO INFORMATION INDEX (FIGURE 4-1)

Access to information in various printed or telecommunication media broadens the opportunity for pupils to absorb information, read and increase their knowledge. The "Access to Information Index" is constructed to reflect the different modes of information available to pupils in their home and neighbourhood environment. These include: access to radio, TV, video, computer, telephone, books and magazines in the home, and a local library in the neighbourhood. Each available information source was awarded a score of one. The index ranges from 0 to 7 where scores closer to 0 implies low access and scores closer to 7 imply relatively high access to information.

PARENT EDUCATION INDEX (TABLE 4-5)

The education levels of parents determines the extent to which they are predisposed to support the learning development of the children in the home. Parental education levels are therefore an important factor affecting learner achievement. The "Parent Education Index" gives a combined indication of the education levels of both mother and father. For each response the following points are awarded: "Never attended

school" was allocated no score, "Did not complete primary education" was allocated one, "Completed primary education" was allocated two, "Completed secondary education" was allocated three, and "Has post-secondary education" was allocated four. Thus the scores for each pupil's household could range from 0 to 8 with a higher score indicating higher education levels of both parents.

HOME READING MATERIALS INDEX (TABLE 4-5)

The extent to which learners engage in reading out of school is directly influenced by the availability of reading matter in the home. This index, provides an indication of the quantity of learning materials available in the home. It comprises a combination of the number of books at home, and the frequency of newsaper purchases. Scores were allocated on the following basis for number of books: "None" = zero, "Less than 10" = one, "Between 11 and 20 = two, and "20 and above". Newspaper purchases were scored as follows: "Never" = zero, "Sometimes" = 1, "Weekly" = 2 and "Daily" = 3. Scores can therefore range from 0 to 6 where higher scores signify greater variety and availability of reading material.

HOME LEARNING SUPPORT INDEX (TABLE 4-5)

The home learning support index provides a picture of the interest and involvement displayed by parents in school activities of their children. The questions that make up this index include: the frequency with which, (a) parents participate in school activities, (b) discuss the progress of the child with the class teacher, and (c) discuss schoolwork with the child. The format of the instrument required a response of either, "Not at all", "Sometimes" or "Regularly", for each of the possible types of parent involvement given above. A three point scale of values of zero, 1 or 2 were assigned to "Not at all", "Sometimes" and "Regularly" respectively.

Respondents were also asked to report which persons in the household "usually helps the child with schoolwork" (a) mother, (b) father, (c) brother, (d) sister, (e) other family members and (f) friends/neighbours. The frequency of assistance from each resource person named was allocated values of zero, 1 or 2 based on a three point reporting scale of "Not at all", "Sometimes" and "Regularly". The point assignment process produced a possible range from 0 to 18 where higher scores indicated a more supportive household learning environment.

PARENT OPINION ABOUT EDUCATION INDEX (TABLE 4-5)

Parents who place a high value on education will be committed to ensure that their children stay at school as long as possible and receive maximum benefit from the experience. This "Parent Opinion about Education Index" provides information on the extent to which parents value the importance of education for the future of their children. Parents were requested to agree or disagree with the following statements: (a) "The school provides good education for my child", (b) "If I won a lot of money I would still keep my child in school" and (c) "Spending money on education is a good investment". Each positive response was assigned a value of one. Therefore the index ranges from 0 to 3 with scores closer to 3 indicating a strong positive parental attitude towards education.

CLASSROOM FURNITURE INDEX (TABLE 4-9)

The availability of sufficient basic furniture for the use of pupils and for the use of teachers (eg: desks, tables, chairs) produces an enabling physical environment that can facilitate the teaching-learning process. This "Classroom Furniture Index" is based on teacher self report ratings of availability of six basic classroom furniture items (a) chalkboard, (b) chair, (c) table, (d) pupil desks, (e) pupil chairs and (f) cupboards as either "available" or "not available". For each positive response a point is allocated. The Classroom Furniture Index ranges from 0 to 6 where a high score indicates higher levels of classroom furniture availability.

LEARNING MATERIALS INDEX (TABLE 4-9)

The availability of learning materials can greatly enhance the quality of the teaching and learning process. This "Learning Materials Index" gives an indication of the availability of learning materials for use in the teaching and learning process. These include the availability of: (a) chalk, (b) teacher-made wall charts, (c) pupil-made wall charts, (d) commercial made wall charts, (e) learning aids from the environment and (f) exercise books for pupils. A score of one is allocated for the availability of each of these items which produces a possible range from 0 to 6. A high score indicates that a range of learning materials from different sources are available.

AVAILABILITY OF TEACHER RESOURCES INDEX (TABLE 4-10)

Ready access to a range of resources and services enables teachers to enrich their classroom teaching. This "Access to Teacher Professional Resources Index" was developed in order to provide an indication of the extent to which teachers had access to such opportunities. A score of one was allocated for the availability of each of the following facilities/resources: (a) Teacher Resources Centre, (b) Library, (c) Teacher College of Education, (d) Other(Specify). This produces a possible range from 0 to 4 where a high score indicates that a variety of resources from different sources are available.

TEACHER ACTIVITY AFTER SCHOOL INDEX (TABLE 4-10)

The extent to which teachers engage in school related activities after school hours is a strong indication of teacher commitment to their pupils, schools and the profession. An index of "Teacher Activity after School" is constructed by allocating a value of one for each instance where a teacher responded that he/she engaged in certain activities after school. The given activities are: (a) Administration, (b) Preparation for lessons, (c) Correcting and marking pupil exercises, (d) Extra-curricular activities during school hours, (e) Remedial teaching, (f) Meetings with school heads and other teachers. This structure produces a possible range from 0 to 6 with a high score indicating greater commitment.

SCHOOL BUILDING INDEX (TABLE 4-15)

The structure of the school building can facilitate various teaching learning and administrative support activities depending on the availability and spatial arrangement of the rooms and spaces that are available. This index gives an indication of the range of special physical facilities available in the school building, such as: a staffroom, music room, workshop, library, storeroom(s) and other rooms for special purposes. A value of one is assigned for each type of facility that is available at the school: (a) staffroom; (b) special room (music, art); (c) workshop rooms; (d) libraries; (e) storerooms; (f) boarding facilities. Thus scores can range from 0 to 5 with higher scores indicating a better equipped teaching environment.

LACK OF AMENITIES INDEX (TABLE 4-15)

Schools need to have playgrounds, sports equipment, agricultural land, school gardens and access to basic supply of water and electricity in order to enable learners to broaden their out of classroom activities. The Lack of Amenities Index was constructed to give an indication of which schools have the greatest need for the supply of such amenities. There are six items in this Index: Question 23 (a) playground; (b) sports equipment; (c) agricultural land; and Question 24 (d) water; (d) electricity and (j) school garden. Each "not available" response was assigned a value of one. With a range of 0 to 6, a higher score implies a greater need for supplying such amenities.

APPENDIX B: STANDARDISATION OF INSTRUMENTS

TABLE 1: STANDARDISATION OF TEST ITEMS FOR THE AFRICA REGIONAL REPORT

LIFE SKILLS TEST

DOMAINS	French Paper				English Paper			
	Items	No. of Items	Desired Mastery Level		Items	No. of Items	Desired Mastery Level	
1. Civic sense - Environment	13-27	15	11/15	73.3%	1,3,19 21-23	6	4/6	66.6%
2. Health	1-12	12	9/12	75%	2,3-12 16, 24	12	9/12	75%
3. Science and Technology	28-34	7	5/7	71.4%	13-15 17,18, 20	6	4/6	66.7%
Total		34	25/34	73.5%		24	17/24	70.8%

LITERACY TEST

DOMAINS	French Paper				English Paper			
	Items	No. of Items	Desired Mastery Level		Items	No. of Items	Desired Mastery Level	
1. Vocabulary	1-5	5	4/5	80%	1-4	4	3/4	75%
2. Reading and Comprehension	6-14	9	7/9	77.8%	5-7, 12-16, 25-29	13	10/13	76.9%
3. Writing-Expression	15,16, 21-32	14	10/14	71.4%	8-11, 20-24, 30	10	7/10	70%
4. Grammar	17-20	4	3/4	75%	17-19	3	2/3	66.67%
Total		32	24/32	75%		30	22/30	73.3%

NUMERACY TEST

DOMAINS	French Paper				English Paper			
	Items	No. of Items	Desired Mastery Level		Items	No. of Items	Desired Mastery Level	
1. Numbers	1-8, 14, 16a, b 17, 20, 21, 23, 24, 27, 28, 30(a),(b),31 a, b	22	17/22	77.3%	1, 3-5, 7, 13, 14, 16, 17, 18, 21-23, 26, 27	15	11/15	73.3%
2. Geometry	13, 18, 19, 26, 29	5	3/5	60%	6, 9, 10, 15, 19, 25, 30	7	5/7	71.4%
3. Measurement	9-12, 15, 22, 25	7	5/7	71.4%	2, 8, 11, 12 20, 24, 28, 29	8	6/8	75%
Total		34	25/34	73.5%		30	22/30	73.3%

TABLE 2: STANDARDISATION OF QUESTIONNAIRE ITEMS FOR THE AFRICA REGIONAL REPORT

Questionnaire	Variables	Anglo-phone	Franco-phone	Current Report(questions are based on English version)
1. Pupil	Pupil s characteristics	5	5	Q1, Q2, Q4, Q5
	Learning environment	7	8	Q6, Q3 A16, Q17 Q15, Q18 Q19
	Access to school	5	5	Q7, Q8, Q9, Q11, Q12
	Pupil teacher relationship	2	6	Q13, Q10
	Support at home	1	1	Q14
2. Teacher	Teacher characteristics	5	9	Q1, Q2, Q3, Q5
	Class characteristics	8	17	Q6, Q7, Q8, Q10, Q9, Q11, Q12, Q13
	Teaching/ Learning materials	5	9	Q14, Q15, A16, Q17, Q18
	Supervision	2	9	Q19
	Working conditions	7	8	Q21, Q22, Q23, Q24, Q25, Q26, Q27
	Assessment practices	3	7	Q28, Q29, Q30
3. School Head	School background	9	10	Q1, Q2, Q3, Q5, Q7, Q8, Q9
	Head Teacher background information	5	6	Q10, Q11, Q12, Q13, Q14
	Staffing issues	4	7	Q15, Q18
	School facilities	8	11	Q19, Q20
	Material	0	3	Q21, Q22, Q23, Q24, Q25, Q26
	Health, safety and security	6	4	Q27, Q29, Q30, Q32
	School finance	1	2	Q33
	School governance and mangement	4	3	Q35, Q36, Q37
4. Parents	Home characteristics	6	7	Q1, Q2, Q3, Q4, Q5
	Socio-economic	7	7	Q7, Q8, Q9, Q10, Q11, Q12, Q13
	Support for learning	12	14	Q14, Q15, Q16, Q17, Q21, Q22, Q23, Q24, Q25, Q26, Q27, Q28
	Opinion about school	1	1	Q29
	Family education level	3	3	Q18, Q19, Q20

APPENDIX C:
ADDITIONAL ANALYSIS

APPENDIX C-1

Repetition Rates by Country and Grade

	Years in grade 1				Years in grade 2				Years in grade 3				Years in grade 4			
	1	2	3	4+	1	2	3	4+	1	2	3	4+	1	2	3	4+
Botswana	885	108	07	01	936	57	06	01	940	49	10	01	853	134	07	06
Madagascar	785	215	4	NA	782	208	NA	NA	950	350	NA	NA			NA	NA
Malawi	743	216	35	06	765	212	19	04	749	220	27	04	853	135	06	06
Mali	887	93	20	0	917	63	0	0	928	69	00	00	881	119	00	00
Mauritius	998	01	00	00	997	03	01	00	993	05	02	01	991	06	01	01
Morocco	886	114	00	*	907	92	01	*	881	115	04	*	917	83	*	*
Niger	978	22	00	0	972	28	0	0	965	34	01	00	947	53	00	00
Senegal	886	55	01	58	867	68	02	0	843	79	07	71	798	124	04	74
Tunisia	876	122	01	00	953	145	01	01	820	174	05	01	851	145	03	00
Uganda	831	140	21	08	831	151	15	02	851	114	27	08	832	139	07	21
Zambia	932	66	02	00	928	70	01	01	932	57	11	00	885	100	03	12

* Pupils are allowed to spend more than 3 years in one grade.

NA Not asked

APPENDIX C-2

Coefficients of Variation by Test Domain, Gender, School Location and Type

	Test domains		
	Literacy	Numeracy	Life skills
Botswana	0.31	0.29	0.27
Madagascar	0.38	0.40	0.14
Malawi	0.40	0.33	0.18
Mali	0.37	0.38	0.34
Morocco	0.23	0.33	0.26
Mauritius	0.34	0.33	0.34
Niger	0.46	0.42	0.37
Senegal	0.37	0.39	0.35
Tunisia	0.18	0.31	0.18
Uganda	0.29	0.37	0.30
Zambia	0.42	0.47	0.45

APPENDIX C-3

Mean Deviation between Countries by Total of 3 Tests, Life Skills, Literacy and Numeracy

	Mean deviation between countries			
	Global	Life skills	Literacy	Numeracy
Botswana	-2.06	-4.84	5.37	3.82
Madagascar	2.26	11.34	1.37	-3.45
Malawi	2.16	16.16	-18.37	-4.18
Mali	2.32	-3.92	-1.55	-3.56
Morocco	8.29	1.52	14.26	9.22
Mauritius	5.61	2.84	7.63	11.34
Niger	11.75	13.10	12.25	9.87
Senegal	-8.53	-14.16	-4.51	7.45
Tunisia	17.31	13.81	24.54	13.20
Zambia	10.34	5.92	4.63	2.15
Uganda	-4.30	-51.00	-43.00	0.00
Total mean	53.73	60.84	53.37	47.18

APPENDIX C-4

Differences in mean scores by gender, school location and type

	Combined mean score					
	Location		Type		Gender	
	DIF	Sig	DIF	Sig	DIF	Sig
Botswana	3.90	0.00	-24.18	0.00	-6.40	0.00
Madagascar	9.82	0.00	-5.28	0.00	-1.62	0.00
Malawi	5.28	0.00	-6.47	0.00	-1.95	0.00
Mali	4.50	0.00	3.74	0.00	-2.85	0.00
Morocco	1.07	0.01	-1.84	0.00	-1.09	0.19
Mauritius						
Niger	1.20	0.31			-0.35	0.78
Senegal	2.56	0.00	-7.54	0.00	-1.79	0.07
Tunisia	7.56	0.00			-3.03	0.00
Uganda	3.51		-1.54	0.00	-0.82	0.25
Zambia	7.40	0.00	-18.87	0.00	-3.71	0.00

	Literacy					
	Location		Type		Gender	
	DIF	Sig	DIF	Sig	DIF	Sig
Botswana	4.17	0.00	-24.71	0.00	-5.37	0.00
Madagascar	12.96	0.00	-4.58	0.00	-2.46	0.05
Malawi	2.33	0.00	-3.79	0.00	-1.29	0.01
Mali	6.95	0.00	-3.39	0.00	-4.66	0.00
Morocco	0.78	0.00	-3.69	0.00	-0.90	0.06
Mauritius	5.67	0.00	-3.85	0.00	-5.53	0.00
Niger	4.89	0.00			-0.83	0.42
Senegal	1.83	0.03	-1.10	0.39	-0.51	0.51
Tunisie	6.20	0.00			-2.23	0.00
Uganda	7.10	0.00	-15.90	0.00	-1.10	0.30
Zambia	10.40	0.00	-20.50	0.00	-1.60	0.02

	Numeracy					
	Milieu / Localisation		Type		Gender	
	DIF	Sig	DIF	Sig	DIF	Sig
Botswana	2.07	0.00	-21.87	0.00	-3.22	0.00
Madagascar	10.34	0.00	-7.87	0.00	-1.13	0.07
Malawi	1.45	0.01	-5.02	0.00	-4.64	0.00
Mali	1.92	0.03	-0.77	0.42	-1.79	0.05
Morocco	4.73	0.00	-7.29	0.00	-0.59	0.31
Mauritius	7.30	0.00	-3.98	0.02	-1.80	0.04
Niger	1.48	0.10			-1.14	0.17
Senegal	-4.64	0.00	-16.37	0.00	-1.26	0.25
Tunisia	3.08	0.00			-2.39	0.00
Uganda	3.71	0.00	-7.40	0.00	-2.65	0.00
Zambia	5.00	0.00	-14.90	0.00	-0.60	0.00

	Life skills					
	Background		Type		Genre	
	DIF	Sig	DIF	Sig	DIF	Sig
Botswana	0.11	0.80	-18.91	0.00	-3.60	0.00
Madagascar	3.86	0.00	-3.63	0.00	-0.90	0.01
Malawi	2.46	0.00	-4.38	0.00	-3.85	0.00
Mali	10.73	0.00	-7.70	0.00	-1.86	0.08
Morocco	4.53	0.00	-5.28	0.00	-0.33	0.50
Mauritius	3.81	0.00	-1.74	0.32	-0.54	0.58
Niger	0.53	0.61			-1.46	0.12
Senegal	0.18	0.79	-1.45	0.18	-0.07	0.91
Tunisia	6.98	0.00			-0.26	0.55
Uganda	0.55	0.24	-9.85	0.00	-3.09	0.00
Zambia	7.80	0.00	-19.60	0.00	-0.80	0.00

[*] 1- Background : Urban-Rural; 2- Type : Public-Private; 3- Gender : Boys-Girls

APPENDIX C-5

Minimum and desired mastery level

Combined score					
	Mean	SD	CV	MML	DML
Botswana	51.67	15.00	0.29	57.8	9.6
Madagascar	55.99	13.50	0.24	66.1	11.7
Malawi	51.57	10.41	0.20	54.9	3.0
Mali	50.61	15.58	0.31	54.4	7.3
Morocco	62.02	10.75	0.17	66.6	17.2
Mauritius	59.34	17.63	0.30	75.5	34.1
Niger	41.98	14.27	0.34	35.8	2.0
Senegal	45.20	9.97	0.22	31.2	0.2
Tunisia	71.04	13.28	0.19	92.6	48.2
Zambia	43.39	16.68	0.38	31.9	5.6
Uganda	58.03	18.46	0.32	66.6	29.2

Literacy					
	Mean	SD	CV	MML	DML
Botswana	48.00	15.00	0.31	45.2	6.0
Madagascar	54.74	21.15	0.39	56.9	20.6
Malawi	35.00	14.00	0.40	15.3	1.4
Mali	51.82	19.37	0.37	50.4	13.1
Morocco	67.63	15.48	0.23	85.9	45.5
Mauritius	61.00	21.00	0.34	75.5	35.4
Niger	41.12	18.86	0.46	39.3	3.6
Senegal	48.86	18.11	0.37	45.6	6.7
Tunisia	77.91	15.08	0.19	95.1	70.8
Uganda	58.00	17.00	0.29	70.6	23.7
Zambia	43.00	18.00	0.42	37.8	7.3

Numeracy					
	Mean	SD	CV	MML	DML
Botswana	51.00	15.00	0.29	55.4	5.4
Madagascar	43.73	17.44	0.40	34.4	5.6
Malawi	43.00	14.00	0.33	30.7	1.4
Mali	43.62	16.75	0.38	37.9	6.2
Morocco	56.40	18.89	0.33	63.6	25.5
Mauritius	58.52	19.16	0.33	69.4	26.4
Niger	37.31	15.78	0.42	15.3	5.7
Senegal	39.73	15.55	0.39	22.9	3.0
Tunisia	60.38	18.42	0.31	71.6	33.0
Uganda	49.33	18.14	0.37	48.7	12.1
Zambia	36.00	17.00	0.47	19.9	4.4

Life Skills					
	Mean	SD	CV	MML	DML
Botswana	56.00	15.00	0.27	71.8	14.9
Madagascar	72.18	10.30	0.14	97.3	60.3
Malawi	77.00	14.00	0.18	95.4	69.4
Mali	56.92	19.11	0.34	69.8	23.7
Morocco	62.36	16.17	0.26	72.2	23.1
Mauritius	58.00	20.00	0.34	69.9	32.4
Niger	47.74	17.59	0.37	44.9	7.0
Senegal	46.68	16.23	0.35	36.3	7.0
Tunisia	74.65	13.39	0.18	95.1	56.7
Uganda	66.76	20.25	0.30	79.6	51.7
Zambia	51.00	23.00	0.45	49.0	26.1

APPENDIX C-6

Difference In Literacy Scores By School Location, School Type And Gender

	School Location			
	Urban	Rural	DIF	Sig
Botswana	50.41	46.24	4.17	0.00
Madagascar	55.00	52.00	12.98	0.00
Malawi	36.49	34.16	2.33	0.00
Mali	55.87	48.92	6.95	0.00
Morocco	69.09	66.31	2.78	0.00
Mauritius	65.09	59.42	5.67	0.00
Niger	44.34	39.75	4.59	0.00
Senegal	49.76	48.14	1.63	0.03
Tunisia	79.62	73.42	6.20	0.00
Uganda	64.30	57.20	7.10	0.00
Zambia	45.80	39.40	10.40	0.00

	Difference in Literacy mean score per country			
	Type			
	Public	Private	DIF	Sig
Botswana	47.35	82.6	-34.71	0.00
Madagascar	50.00	65.00	-14.59	0.00
Malawi	34.97	42.89	-7.92	0.09
Mali	51.06	54.44	-3.39	0.00
Morocco	67.18	70.86	-3.69	0.00
Mauritius	62.29	58.44	3.85	0.03
Senegal	48.75	49.86	-1.10	0.39
Uganda	58.22	74.12	-15.90	0.00
Zambia	41.03	61.55	-20.52	0.00

	Difference in Literacy mean score per country			
	Gender			
	Boys	Girls	DIF	Sig
Botswana	45.33	50.40	-5.07	0.00
Madagascar	54.00	56.00	-1.46	0.05
Malawi	35.44	34.15	1.29	0.01
Mali	54.42	49.76	4.66	0.00
Morocco	68.11	67.21	0.90	0.06
Mauritius	58.83	64.36	-5.53	0.00
Niger	40.79	41.33	-0.83	0.42
Senegal	49.12	48.61	0.51	0.51
Tunisia	77.04	79.27	-2.23	0.00
Uganda	59.50	60.60	-1.10	0.03
Zambia	41.50	43.30	-1.80	0.09

APPENDIX C-7

Difference in Numeracy scores by School Location, School type and Gender

	Difference in Numeracy mean score per country			
	Background			
	Urban	Rural	DIF	Sig
Botswana	51.67	49.60	2.07	0.00
Madagascar	52.00	41.00	10.34	0.00
Malawi	44.72	43.27	1.45	0.01
Mali	44.65	42.73	1.92	0.03
Morocco	59.89	54.15	4.73	0.00
Mauritius	52.85	45.55	7.30	0.00
Niger	38.54	36.83	1.48	0.10
Senegal	42.18	37.54	4.64	0.00
Tunisia	62.84	53.75	9.08	0.00
Uganda	51.21	47.50	3.71	0.00
Zambia	38.80	33.80	5.00	0.00

	Difference in Numeracy mean score per country			
	Type			
	Public	Private	DIF	Sig
Botswana	51.67	73.54	-21.87	0.00
Madagascar	41.00	49.00	-7.87	0.00
Malawi	43.54	48.56	-5.02	0.00
Mali	43.36	44.13	-0.77	0.42
Morocco	55.48	62.77	-7.29	0.00
Mauritius	58.86	54.88	3.98	0.02
Senegal	37.98	53.36	-15.37	0.00
Uganda	50.64	58.04	-7.40	0.00
Zambia	35.31	50.25	-14.94	0.00

	Difference in Numeracy mean score per country			
	Gender			
	Boys	Girls	DIF	Sig
Botswana	50.48	53.70	-3.22	0.00
Madagascar	44.00	43.00	1.13	0.07
Malawi	45.99	41.35	4.64	0.00
Mali	44.58	42.79	1.79	0.05
Morocco	56.09	56.68	-0.59	0.31
Mauritius	57.49	59.45	0.00	0.04
Niger	36.74	38.07	-1.33	0.17
Senegal	40.33	39.07	1.26	0.05
Tunisia	61.80	59.41	2.39	0.00
Uganda	50.66	48.01	2.65	0.00
Zambia	35.10	35.70	-0.60	0.54

APPENDIX C-8

Difference in Life skills score by school location, school type and gender

Difference in Life Skills mean score per country				
	Background			
	Urban	Rural	DIF	Sig
Botswana	56.36	56.25	0.11	0.80
Madagascar	75.00	71.00	3.86	0.00
Malawi	78.48	76.02	2.46	0.00
Mali	62.23	51.50	10.73	0.00
Morocco	64.83	60.29	4.53	0.00
Mauritius	61.14	57.23	3.91	0.00
Niger	47.57	47.81	-0.53	0.61
Senegal	46.77	46.59	0.18	0.79
Tunisia	76.58	69.60	6.98	0.00
Uganda	67.03	67.58	-0.55	0.24
Zambia	54.80	47.00	7.80	0.00

Difference in Life Skills mean score per country				
	Type			
	Public	Private	DIF	Sig
Botswana	56.05	74.96	-18.91	0.00
Madagascar	71.00	75.00	-3.63	0.00
Malawi	76.27	80.65	-4.38	0.00
Mali	53.96	61.67	-7.70	0.00
Morocco	61.70	66.98	-5.28	0.00
Mauritius	58.36	56.62	1.74	0.32
Senegal	46.86	45.41	1.45	0.18
Uganda	66.51	76.36	-9.85	0.00
Zambia	49.70	69.30	-19.60	0.00

Difference in Life Skills mean score per country				
	Gender			
	Boys	Girls	DIF	Sig
Botswana	54.54	58.14	-3.60	0.00
Madagascar	72.00	73.00	-0.90	0.01
Malawi	78.75	74.90	3.85	0.00
Mali	57.46	55.60	1.86	0.08
Morocco	62.17	62.51	-0.33	0.50
Mauritius	57.79	58.33	-0.54	0.58
Niger	46.88	46.93	-0.05	0.12
Senegal	46.75	46.68	0.07	0.91
Tunisia	74.71	74.97	-0.26	0.56
Uganda	68.29	65.20	3.09	0.00
Zambia	49.50	50.30	-0.80	0.61

APPENDIX C-9
COUNTRY DATA: BY TEST DOMAIN, GENDER, SCHOOL LOCATION AND SCHOOL TYPE

BOTSWANA

Botswana	Valid N	Mean	SD	M.M.L	D.M.L
TOTAL 3 TESTS	5529	51.67	15	57.8	8.77
Literacy total	5558	48	15	46.2	6.0
Vocabulary	5558	70	27	85.8	67.8
Comprehension	5558	53	17	57.6	12.3
Writing/Expression	5558	27	18	13.6	2.7
Grammar	5558	49	32	47.4	16.4
Numeracy total	5557	51	15	55.4	5.4
Numbers	5557	53	17	58.8	16.1
Geometry	5557	54	22	58.6	33.0
Measurement	5557	39	18	41.3	4.8
Lifeskills total	5472	56	15	71.8	14.9
Civics/Environment	5472	69	24	84.7	71.0
Health	5472	54	17	69.8	14.6
Science & Technology	5472	49	23	62.6	12.8

Botswana	Boys					Girls				
	Valid N	Mean	SD	ML Min	ML Max	Valid N	Mean	SD	ML Min	ML Max
Literacy total	2787	45	14	389	45	2757	50	15	538	75
Vocabulary	2787	67	28	823	622	2757	73	25	896	737
Comprehension	2787	51	17	522	96	2757	56	17	621	152
Writing/Expression	2787	24	17	100	21	2757	31	17	172	33
Grammar	2787	48	32	468	156	2757	50	31	479	171
Numeracy total	2664	50	15	516	53	2666	53	14	608	56
Numbers	2664	51	17	550	139	2666	55	16	642	183
Geometry	2664	52	22	551	316	2666	56	21	628	353
Measurement	2664	39	19	411	50	2666	40	18	428	49
Lifeskills total	2612	55	15	668	137	2622	58	14	785	169
Civics/Environment	2612	66	25	817	659	2622	72	22	890	776
Health	2612	52	17	654	126	2622	56	16	755	174
Science & Technology	2612	50	23	626	140	2622	49	22	638	131

Botswana	Urban					Rural				
	Valid N	Mean	SD	ML Min	ML Max	Valid N	Mean	SD	ML Min	ML Max
Literacy total	2615	50	16	504	90	2576	46	14	423	31
Vocabulary	2615	72	26	880	704	2576	68	27	840	650
Comprehension	2615	55	17	615	151	2576	52	16	545	95
Writing/Expression	2615	29	19	165	46	2576	25	16	110	09
Grammar	2615	52	32	512	197	2576	46	31	432	128
Numeracy total	2543	52	15	590	67	2529	50	15	522	40
Numbers	2543	54	17	620	182	2529	52	16	567	140
Geometry	2543	55	22	612	352	2529	53	21	554	303
Measurement	2543	40	18	435	46	2529	38	18	392	50
Lifeskills total	2529	56	16	712	175	2443	56	14	737	124
Civics/Environment	2529	68	25	833	706	2443	69	23	865	720
Health	2529	54	18	702	170	2443	53	16	697	125
Science & Technology	2529	48	24	607	132	2443	50	22	648	127

Botswana	Public					Private				
	Valid N	Mean	SD	ML Min	ML Max	Valid N	Mean	SD	ML Min	ML Max
Literacy total	5104	47	14	455	47	87	82	10	989	828
Vocabulary	5104	70	27	858	672	87	96	6	1000	1000
Comprehension	5104	53	16	573	112	87	84	11	989	782
Writing/Expression	5104	27	17	127	19	87	64	21	782	540
Grammar	5104	49	31	464	154	87	89	20	954	713
Numeracy total	4969	51	15	550	46	84	73	11	964	500
Numbers	4969	53	17	589	155	84	71	13	940	548
Geometry	4969	54	21	577	320	84	77	17	940	833
Measurement	4969	39	18	406	42	84	64	14	893	393
Lifeskills total	4870	56	15	721	140	83	75	10	976	735
Civics/Environment	4870	69	24	846	709	83	65	5	988	928
Health	4870	53	16	696	136	83	85	14	988	892
Science & Technology	4870	49	23	625	130	83	58	18	819	133

APPENDIX C-10
COUNTRY DATA: BY TEST DOMAIN, GENDER, SCHOOL LOCATION AND SCHOOL TYPE

MADAGASCAR

Madagascar	Number	Mean	SD	M.M.L.	D.M.L
TOTAL 3 TESTS	3165	55.99	13.50	66.1	11.7
Literacy total	3163	55.00	21.00	56.9	20.6
Vocabulary	3156	53.00	35.00	59.7	39.2
Comprehension	3130	72.00	25.00	79.9	57.7
Grammar	3163	48.00	26.00	46.6	29.1
Writing/Expression	3160	56.00	24.00	61.4	39.2
Numeracy total	3165	44.00	17.00	34.4	5.6
Numbers	3165	49.00	20.00	51.3	12.4
Measurement	3157	32.00	24.00	27.3	6.4
Geometry	3156	43.00	20.00	36.5	7.5
Lifeskills total	3164	72.00	10.00	97.3	60.3
Health	3162	80.00	14.00	97.1	64.8
Civics/Environment	3162	72.00	14.00	94.1	74.5
Science & Technology	3157	76.00	19.00	97.1	80.2

Madagascar	Urban					Rural				
	Number	Mean	SD	M.M.L.	D.M.L.	Number	Mean	SD	M.M.L.	D.M.L.
TOTAL 3 TESTS	708	62.84	11.95	84.60	22.20	2457	54.02	13.27	60.80	8.70
Literacy total	708	65.00	20.00	75.00	35.30	2455	52.00	21.00	51.70	16.30
Vocabulary	708	63.00	34.00	72.90	50.30	2448	49.00	34.00	55.80	36.00
Comprehension	700	81.00	20.00	92.00	74.00	2430	69.00	26.00	76.40	53.00
Grammar	708	58.00	26.00	63.10	43.50	2455	46.00	26.00	41.80	24.90
Writing/Expression	708	67.00	23.00	79.70	60.90	2452	53.00	23.00	56.10	33.00
Numeracy total	708	52.00	17.00	52.70	10.70	2457	41.00	17.00	29.20	4.20
Numbers	708	57.00	18.00	69.90	22.00	2457	46.00	20.00	46.00	9.60
Measurement	708	39.00	25.00	39.30	9.30	2449	30.00	23.00	23.80	5.50
Geometry	708	51.00	19.00	50.30	12.30	2448	41.00	20.00	32.50	6.10
Lifeskills total	708	75.00	9.00	98.60	73.20	2456	71.00	10.00	97.00	56.60
Health	707	87.00	12.00	98.70	83.90	2455	78.00	14.00	96.60	59.30
Civics/Enviro	707	74.00	13.00	95.90	79.60	2455	71.00	14.00	93.50	73.10
Science & Tech	706	78.00	20.00	96.90	81.60	2451	76.00	19.00	97.20	79.80

Madagascar	Public					Private				
	Number	Mean	SD	M.M.L.	D.M.L.	Number	Mean	SD	M.M.L.	D.M.L.
TOTAL 3 TESTS	2238	53.57	12.25	61.30	5.90	927	61.85	SD	77.80	25.60
Literacy total	2236	50.00	19.00	49.80	12.80	927	65.00	22.00	74.10	39.40
Vocabulary	2230	50.00	34.00	56.60	35.90	926	60.00	36.00	67.10	47.20
Comprehension	2217	69.00	25.00	77.50	32.90	913	78.00	24.00	85.70	69.60
Grammar	2234	43.00	24.00	37.60	19.60	927	62.00	27.00	68.30	51.90
Writing/Expression	2234	53.00	23.00	56.50	32.90	926	65.00	25.00	78.10	54.30
Numeracy total	2238	41.00	16.00	29.40	2.60	927	49.00	20.00	46.60	12.80
Numbers	2238	46.00	18.00	47.30	8.00	927	54.00	22.00	60.90	22.90
Measurement	2230	30.00	22.00	22.70	4.30	927	38.00	26.00	38.40	11.20
Geometry	2229	42.00	19.00	33.50	5.20	927	48.00	21.00	43.70	13.10
Lifeskills total	2237	71.00	10.00	97.10	55.80	927	75.00	10.00	97.80	71.10
Health	2235	78.00	14.00	96.80	59.80	927	84.00	13.00	97.80	77.00
Civics/Enviro	2235	71.00	14.00	93.60	73.00	927	74.00	13.00	95.10	78.30
Science & Tech	2230	76.00	19.00	96.90	79.20	927	78.00	19.00	97.60	82.50

Madagascar	Boys					Girls				
	Number	Mean	SD	M.M.L.	D.M.L.	Number	Mean	SD	M.M.L.	D.M.L.
TOTAL 3 TESTS	1603	55.71	13.30	65.40	10.70	1530	56.32	13.76	66.70	12.90
Literacy total	1602	54.00	21.00	56.10	19.00	1530	56.00	22.00	58.00	22.50
Vocabulary	1599	51.00	35.00	57.60	38.50	1527	54.00	35.00	61.90	39.90
Comprehension	1584	72.00	25.00	80.20	57.60	1516	72.00	25.00	79.70	58.00
Grammar	1602	47.00	26.00	44.60	26.90	1530	50.00	27.00	61.10	31.40
Writing/Expression	1600	56.00	24.00	61.90	39.50	1530	56.00	24.00	61.10	39.20
Numeracy total	1603	44.00	17.00	35.50	5.60	1530	43.00	18.00	33.00	5.80
Numbers	1603	49.00	20.00	52.40	12.20	1530	48.00	20.00	50.20	12.50
Measurement	1600	32.00	24.00	27.10	6.30	1526	32.00	24.00	27.90	6.60
Geometry	1599	44.00	20.00	37.50	7.90	1526	43.00	20.00	35.50	7.10
Lifeskills total	1602	72.00	10.00	97.10	58.10	1530	73.00	10.00	97.60	62.80
Health	1600	79.00	14.00	97.00	63.40	1530	81.00	11.00	97.10	66.70
Civics/Enviro	1600	73.00	13.00	94.80	76.40	1530	71.00	14.00	93.20	72.40
Science & Tech	1599	76.00	19.00	97.20	80.60	1526	77.00	19.00	97.10	79.90

APPENDIX C-11
COUNTRY DATA: BY TEST DOMAIN, GENDER, SCHOOL LOCATION AND SCHOOL TYPE

MALAWI

Malawi	Valid N	Mean	SD	ML Min	ML Max
TOTAL 3 TESTS	3283	52	10	34.9	3.0
Literacy total	3283	35	14	15.3	1.4
Vocabulary	3283	54	28	70.4	39.0
Comprehension	3283	37	17	22.3	1.5
Writing/Expression	3283	23	21	8.5	2.8
Grammar	3283	35	23	45.7	11.9
Numeracy total	3283	43	14	30.7	1.4
Numbers	3283	42	16	40.4	4.2
Geometry	3283	47	27	62.7	29.2
Measurement	3283	43	21	37.9	8.7
Lifeskills total	3283	77	14	95.4	69.4
Civics/Environment	3283	80	17	97.1	89.6
Health	3283	78	17	92.4	61.0
Science & Technology	3283	70	20	92.0	42.9

Malawi	Boys					Girls				
	Valid N	Mean	SD	ML Min	ML Max	Valid N	Mean	SD	ML Min	ML Max
TOTAL 3 TESTS	1646	53	11	620	38	1637	50	10	477	21
Literacy total	1646	35	14	171	16	1637	34	13	134	13
Vocabulary	1646	55	28	708	407	1637	53	27	699	372
Comprehension	1646	37	17	234	15	1637	36	16	211	15
Writing/Expression	1646	24	22	99	32	1637	22	20	91	24
Grammar	1646	36	23	454	129	1637	35	21	359	118
Numeracy total	1646	46	14	378	22	1637	41	13	216	05
Numbers	1646	44	16	445	52	1637	41	15	363	33
Geometry	1646	52	28	689	369	1637	42	26	564	214
Measurement	1646	45	21	420	101	1637	41	20	338	53
Lifeskills total	1646	79	14	958	745	1637	75	13	950	643
Civics/Environment	1646	82	17	973	899	1637	78	15	964	862
Health	1646	79	17	928	640	1637	77	15	930	561
Science & Technology	1646	74	19	942	526	1637	66	20	882	332

Malawi	Urban					Rural				
	Valid N	Mean	SD	ML Min	ML Max	Valid N	Mean	SD	ML Min	ML Max
TOTAL 3 TESTS	818	53	10	589	43	2406	51	10	535	26
Literacy total	818	36	15	183	22	2406	34	14	146	12
Vocabulary	818	57	27	759	423	2406	53	28	697	334
Comprehension	818	40	17	296	31	2406	36	16	262	10
Writing/Expression	818	23	23	116	48	2406	23	20	76	22
Grammar	818	39	23	445	120	2406	35	23	359	117
Numeracy total	818	45	14	342	15	2406	44	13	298	14
Numbers	818	43	16	425	43	2406	42	15	400	40
Geometry	818	50	28	648	340	2406	43	26	614	276
Measurement	818	44	20	380	77	2406	41	20	383	92
Lifeskills total	818	78	13	973	748	2406	76	13	944	675
Civics/Environment	818	84	16	964	639	2406	79	15	966	879
Health	818	80	16	941	655	2406	78	15	917	595
Science & Technology	818	70	20	923	435	2406	70	20	919	426

Malawi	Public					Private				
	Valid N	Mean	SD	ML Min	ML Max	Valid N	Mean	SD	ML Min	ML Max
TOTAL 3 TESTS	3061	51	10	539	28	163	57	9	765	37
Literacy total	3061	34	14	147	13	163	43	15	313	49
Vocabulary	3061	54	28	701	393	163	58	27	708	399
Comprehension	3061	36	17	221	13	163	43	16	288	55
Writing/Expression	3061	22	20	75	23	163	30	26	276	123
Grammar	3061	35	23	451	118	163	41	21	589	141
Numeracy total	3061	43	14	300	13	163	49	13	479	31
Numbers	3061	42	16	400	41	163	47	16	521	80
Geometry	3061	47	27	618	287	163	55	25	779	308
Measurement	3061	41	21	376	84	163	50	19	376	172
Lifeskills total	3061	76	14	952	668	163	81	11	918	598
Civics/Environment	3061	80	17	971	882	163	89	11	982	961
Health	3061	78	17	922	603	163	84	13	963	767
Science & Technology	3061	70	20	912	425	163	79	15	963	691

APPENDIX C-12
COUNTRY DATA: BY TEST DOMAIN, GENDER, SCHOOL LOCATION AND SCHOOL TYPE

MALI

Mali	Number	Mean	SD	M.M.L.	D.M.L.
TOTAL 3 TESTS	1365	50.81	16.39	54.40	7.30
Literacy total	1405	51.82	35.25	50.40	13.10
Vocabulary	1365	85.04	16.75	92.70	80.40
Comprehension	1405	57.03	23.84	61.10	31.50
Grammar	1365	43.54	25.59	51.50	30.70
Writing/ Expression	1365	45.28	25.98	40.30	15.60
Numeracy total	1332	43.62	15.58	37.90	6.20
Numbers	1405	34.12	19.37	13.80	3.20
Measurement	1403	49.90	24.51	60.00	38.00
Geometry	1403	48.31	23.28	47.00	47.00
Lifeskills total	1403	56.92	19.10	69.80	23.70
Health	1405	56.17	25.47	68.20	30.70
Civics/Environment	1403	58.07	20.79	67.90	22.60
Science & Technology	1405	55.62	22.81	61.10	40.10

Mali	Urban					Rural				
	Number	Mean	SD	MML	DML	Number	Mean	Ecart-type	Seuil de maitrise minimum	Seuil de maitrise desirable
TOTAL 3 TESTS	631	54.26	17.33	62.70	10.20	734	47.76	15.38	47.00	4.70
Literacy total	631	55.87	16.91	57.50	18.40	711	48.62	15.50	45.90	10.20
Vocabulary	631	86.89	24.36	92.90	83.80	734	80.43	16.84	76.50	2.60
Comprehension	630	61.16	17.19	68.40	39.00	711	52.95	20.60	54.00	24.50
Grammar	630	48.29	24.57	55.40	37.30	707	40.86	15.74	41.80	25.60
Writing/Expression	631	49.34	26.43	47.60	20.30	734	42.76	15.54	35.70	12.00
Numeracy total	625	44.65	14.07	37.40	7.60	711	42.73	13.27	34.60	4.90
Numbers	630	35.90	19.80	18.40	4.80	734	42.58	20.59	32.80	3.00
Measurement	626	51.08	22.13	62.40	42.20	708	48.89	24.15	57.60	34.50
Geometry	630	47.13	25.25	44.50	44.50	708	40.32	18.60	49.00	40.00
Lifeskills total	626	62.23	23.50	79.40	33.70	708	51.50	23.18	60.70	17.40
Health	626	60.13	17.60	74.60	36.40	708	51.61	20.61	61.30	24.80
Civics/Environment	626	64.05	18.71	77.80	31.30	711	52.23	25.14	58.50	14.50
Science & Technology	626	61.80	25.52	70.30	50.30	711	49.70	23.34	52.40	31.10

Mali	Public					private				
	Number	Mean	SD	MML	DML	Number	Mean	SD	MML	DML
TOTAL 3 TESTS	906	49.49	15.46	51.80	6.40	459	53.43	18.04	59.40	9.00
Literacy total	902	51.06	14.92	47.40	12.60	459	54.44	17.92	58.00	14.70
Vocabulary	906	84.10	19.61	92.90	48.90	459	86.35	23.59	82.20	65.20
Comprehension	892	55.28	24.05	56.50	29.90	449	54.54	24.02	63.60	24.10
Grammar	906	40.41	24.88	47.40	27.50	448	52.12	25.67	62.40	39.30
Writing/Expression	886	44.63	26.55	38.80	15.20	459	40.96	23.71	44.90	17.10
Numeracy total	892	43.36	15.85	38.30	5.50	446	44.13	13.73	37.30	7.40
Numbers	888	33.90	19.43	13.70	1.80	448	46.54	19.90	44.20	5.90
Measurement	888	48.53	23.83	57.70	34.60	446	52.61	24.03	64.50	46.80
Geometry	888	48.76	24.33	47.40	47.40	439	47.41	23.21	46.20	46.20
Lifeskills total	888	53.96	19.52	64.50	18.90	446	61.67	20.83	79.40	30.90
Health	888	52.91	21.48	62.30	27.60	446	60.58	21.64	78.00	25.00
Civics/Environment	892	55.01	20.16	62.00	18.80	446	63.28	19.64	78.50	29.60
Science & Technology	892	53.35	22.80	58.10	36.50	448	59.42	22.75	65.90	45.70

Mali	Boys					Girls				
	Number	Mean	SD	MML	DML	Number	Mean	SD	MML	DML
TOTAL 3 TESTS	738	52.20	16.42	59.70	8.30	617	49.40	16.24	58.80	6.10
Literacy total	738	54.42	16.55	56.80	15.60	617	49.70	16.38	55.00	10.60
Vocabulary	738	86.41	25.98	93.00	83.30	613	83.58	19.62	82.70	78.00
Comprehension	738	58.71	24.24	64.60	35.40	613	54.79	19.62	59.10	29.00
Grammar	738	45.19	25.79	52.10	33.60	617	47.71	19.60	52.90	24.10
Writing/Expression	738	49.78	26.51	45.70	18.70	617	43.80	16.46	36.50	12.70
Numeracy total	714	44.58	15.44	40.40	6.90	609	42.79	13.60	31.10	5.30
Numbers	738	35.42	19.31	14.80	3.40	613	43.15	20.01	41.60	2.90
Measurement	716	50.04	22.67	61.20	38.80	608	49.39	24.31	60.00	17.80
Geometry	716	48.16	24.38	46.70	46.70	613	48.85	23.96	48.00	43.00
Lifeskills total	716	57.68	18.81	71.60	24.70	609	55.60	20.54	67.20	23.30
Health	719	55.97	25.36	68.40	29.30	608	56.50	20.34	66.10	31.30
Civics/Environment	716	58.85	20.66	70.00	24.70	608	58.39	20.14	67.00	14.90
Science & Technology	718	56.88	22.66	63.30	43.00	613	55.64	20.13	58.50	36.00

APPENDIX C-13
COUNTRY DATA: BY TEST DOMAIN, SCHOOL LOCATION, SCHOOL TYPE AND GENDER

MAURITIUS

Mauritius	Cases	Mean	SD	ML Min	ML Max
TOTAL 3 TESTS	1800	59.34	17.63	70.3	24.1
Literacy total	1800	61.20	21.10	75.5	35.4
Vocabulary	1800	86.35	24.20	94.3	88.6
Comprehension	1751	68.20	19.00	80.8	44.4
Writing/ Expression	1687	49.00	28.30	48.4	22.2
Grammar	1698	57.30	28.30	74.4	44.3
Numeracy total	1800	58.52	19.16	69.4	26.4
Numbers	1800	61.00	21.09	69.7	35.7
Geometry	1800	61.06	24.26	66.5	47.7
Measurement	1800	51.65	22.34	61.8	22.3
Lifeskills total	1800	58.40	20.20	69.9	32.4
Civics/ Environment	1800	66.20	28.40	79.3	79.3
Health	1800	56.10	21.30	69.9	23.4
Science & Technology	1800	55.20	25.10	69.6	24.6

Mauritius	Boys					Girls				
	Valid N	Mean	SD	ML Min	ML Max	Valid N	Mean	SD	ML Min	ML Max
TOTAL 3 TESTS	855	57	17	665	222	945	6058	17	738	257
Literacy total	855	59	21	769	284	945	64	21	797	317
Vocabulary	855	85	24	940	867	945	88	23	946	963
Comprehension	833	66	20	764	384	918	70	19	847	468
Writing/Expression	795	44	27	421	172	882	52	27	540	267
Grammar	806	53	28	701	380	882	60	27	783	501
Numeracy total	855	57	19	661	271	945	58	18	724	358
Numbers	855	59	21	667	345	945	62	20	725	367
Geometry	855	59	25	630	448	945	62	24	806	510
Measurement	855	52	22	612	233	945	51	21	653	315
Lifeskills total	855	58	21	586	319	945	58	20	702	369
Civics/Environment	855	64	28	773	773	945	67	28	811	811
Health	855	55	21	676	246	945	56	20	721	283
Science & Technology	855	57	25	718	265	945	54	25	676	258

Mauritius	Urban					Rural				
	Valid N	Mean	SD	ML Min	ML Max	Valid N	Mean	SD	ML Min	ML Max
TOTAL 3 TESTS	720	62	17	313	65	1049	57	17	655	196
Literacy total	720	65	21	435	161	1049	59	21	715	304
Vocabulary	720	89	23	911	774	1049	85	24	942	971
Comprehension	698	72	18	530	267	1023	65	20	773	580
Writing/Expression	672	53	28	271	34	986	46	27	414	195
Grammar	696	58	29	468	414	973	56	27	737	327
Numeracy total	720	62	18	347	258	1049	55	19	642	208
Numbers	720	65	20	447	323	1049	58	20	652	296
Geometry	720	67	23	585	280	1049	57	24	802	308
Measurement	720	56	22	268	97	1049	49	20	584	146
Lifeskills total	720	61	20	390	290	1049	57	21	660	290
Civics/Environment	720	70	28	821	581	1049	63	27	780	810
Health	720	58	20	272	129	1049	55	21	665	213
Science & Technology	720	57	25	254	97	1049	54	24	671	244

Mauritius	Public					Private				
	Valid N	Mean	SD	ML Min	ML Max	Valid N	Mean	SD	ML Min	ML Max
TOTAL 3 TESTS	1619	59	17	716	244	150	56	18	544	340
Literacy total	1619	62	21	768	359	150	58	21	640	340
Vocabulary	1619	87	24	943	886	150	87	23	954	910
Comprehension	1573	68	19	816	451	148	66	21	743	568
Writing/Expression	1541	48	27	494	228	117	45	28	419	188
Grammar	1528	57	28	751	449	141	53	28	660	380
Numeracy total	1619	58	19	710	269	150	54	18	560	343
Numbers	1619	61	21	704	361	150	58	21	640	370
Geometry	1619	61	24	672	485	150	58	24	660	430
Measurement	1619	52	22	632	233	150	47	20	587	347
Lifeskills total	1619	58	20	709	326	150	52	20	616	413
Civics/Environment	1619	66	28	794	799	150	65	28	774	774
Health	1619	56	21	707	234	150	55	21	680	353
Science & Technology	1619	56	25	704	254	150	52	24	680	317

APPENDIX C-14
COUNTRY DATA: BY TEST DOMAIN, SCHOOL LOCATION, SCHOOL, TYPE AND GENDER

MOROCCO

Morocco	Number	Mean	SD	M.M.L.	D.M.L.
TOTAL 3 TESTS	4138	62.02	10.76	86.60	17.20
Literacy total	4285	67.63	15.48	85.90	45.50
Vocabulary	4285	76.87	29.16	89.50	73.00
Comprehension	4285	98.73	4.40	99.90	98.90
Grammar	4285	65.78	22.33	82.40	61.10
Writing/Expression	4285	57.92	24.21	67.10	34.80
Numeracy total	4282	56.40	18.89	63.60	25.50
Numbers	4282	47.18	22.02	35.50	13.40
Measurement	4282	55.58	24.90	70.30	46.30
Geometry	4282	70.55	21.77	83.20	83.20
Lifeskills total	4312	62.36	16.16	72.20	23.10
Health	4312	61.64	20.56	76.50	36.20
Civics/Environment	4312	65.26	16.80	82.70	30.80
Science & Technology	4312	56.84	22.38	63.50	17.10

Morocco	Urban					Rural				
	Number	Mean	SD	M.M.L.	D.M.L.	Number	Mean	SD	M.M.L.	D.M.L.
TOTAL 3 TESTS	1885	641878	1017	9120	2180	2205	6012	1091	804	333
Literacy total	1921	690898	1506	8630	4580	2314	6631	1561	1014	774
Vocabulary	1921	790604	28184	7630	7630	2314	7494	58081	974	974
Comprehension	1921	986003	466	9990	9880	2314	9886	436	1000	991
Grammar	1921	677668	2120	8570	6570	2314	6405	2553	993	553
Writing/Expression	1921	597920	2395	6950	3880	2314	6616	2443	935	814
Numeracy total	1922	588851	1852	6480	2950	2257	5415	1892	934	650
Numbers	1922	497930	2136	4070	1500	2257	4479	2178	908	529
Measurement	1922	590457	2417	5250	5250	2257	5261	2530	809	809
Geometry	1922	716743	2083	8640	8640	2257	6948	2287	986	696
Lifeskills total	1863	648288	1519	8180	2680	2300	6028	1614	893	900
Health	1863	647129	1997	7220	4230	2300	5984	2042	944	910
Civics/Environment	1863	672710	1564	8760	3320	2300	6360	1734	709	859
Science & Technology	1863	592326	2150	6870	1840	2300	5478	2294	903	903

Morocco	Public					Private				
	Number	Mean	SD	M.M.L.	D.M.L.	Number	Mean	SD	M.M.L.	D.M.L.
TOTAL 3 TESTS	3620	6131	1082	849	157	518	6696	867	979	274
Literacy total	3755	6718	1574	820	442	530	7086	1311	1013	513
Vocabulary	3755	7609	2870	720	720	530	8036	2435	1035	746
Comprehension	3755	9886	424	999	999	530	9782	1544	1000	1000
Grammar	3755	6487	2285	811	560	530	7223	1698	1014	642
Writing/Expression	3755	5723	2439	662	338	530	6283	2529	736	338
Numeracy total	3741	5548	1878	558	239	539	6277	1838	724	367
Numbers	3743	4617	2183	435	125	538	5419	2230	864	280
Measurement	3743	5446	2382	444	444	538	6439	2430	1043	564
Geometry	3743	7029	2188	826	826	538	7236	2053	1076	1026
Lifeskills total	3775	6170	1648	732	221	537	6698	1286	875	296
Health	3775	6078	2076	621	345	537	6772	1784	706	677
Civics/Environment	3775	6471	1712	815	303	537	6648	1577	914	548
Science & Technology	3775	5632	2267	622	171	537	6015	1980	726	171

Morocco	Boys					Girls				
	Number	Mean	SD	M.M.L.	D.M.L.	Number	Mean	SD	M.M.L.	D.M.L.
TOTAL 3 TESTS	2034	6197	1084.21	864	176	1990	6207	1074	865	171
Literacy total	2110	6811	1534.53	640	468	2056	6721	1568	865	446
Vocabulary	2110	7684	2920.24	726	426	2056	7684	2934	737	537
Comprehension	2110	9878	336.87	1000	988	2056	9867	482	980	940
Grammar	2110	6609	2215.96	830	618	2056	6550	2256	890	606
Writing/Expression	2110	5848	2118.80	685	345	2056	5752	2454	850	355
Numeracy total	2086	5609	1804.86	573	248	2062	5668	1871	945	251
Numbers	2086	4685	2221.80	348	133	2062	4745	2183	961	146
Measurement	2086	5542	2535.37	471	471	2062	5580	2439	958	958
Geometry	2086	7078	2174.56	835	835	2062	7022	2192	1057	957
Lifeskills total	2125	6217	1653.05	742	237	2066	6251	1611	758	225
Health	2125	6142	2087.32	630	380	2066	6179	2023	1052	304
Civics/Environment	2125	6515	1720.80	818	308	2066	6542	1640	1074	112
Science & Technology	2125	5651	2210.58	632	164	2066	5705	2295	1016	145

APPENDIX C-15
COUNTRY DATA: BY TEST DOMAIN, SCHOOL LOCATION, SCHOOL TYPE AND GENDER

NIGER

Niger	Number	Mean	SD	M.M.L.	D.M.L.
TOTAL 3 TESTS	1532	41.98	14.27	25.6	2.0
Literacy total	1455	41.12	18.86	39.3	3.6
Vocabulary	1455	80.59	27.36	88.0	73.4
Comprehension	1455	50.50	25.71	48.9	11.9
Grammar	1455	43.18	33.51	49.6	27.2
Writing/Expression	1455	32.70	21.46	18.8	10.7
Numeracy total	1491	37.31	15.78	15.3	5.7
Numbers	1491	35.92	18.43	18.4	7.6
Measurement	1491	42.57	25.45	44.5	23.4
Geometry	1491	45.83	24.66	41.8	41.8
Lifeskills total	1467	47.74	17.59	44.9	7.0
Health	1467	46.17	21.81	47.8	16.0
Civics/Environment	1467	48.66	18.92	44.5	8.2
Science & Technology	1467	48.46	23.73	47.2	12.8

Niger	Urban					Rural				
	Number	Mean	SD	M.M.L.	D.M.L.	Number	Mean	SD	M.M.L.	D.M.L.
TOTAL 3 TESTS	424	4281	1420	300	08	1108	4166	1425	239	25
Literacy total	413	4434	1686	416	27	1042	5979	1843	320	38
Vocabulary	413	8183	2789	881	770	1042	8020	2713	875	718
Comprehension	413	5600	2457	589	161	1042	4821	2561	450	104
Grammar	413	4542	3388	298	297	1042	4180	3333	260	254
Writing/Expression	413	3582	1928	189	93	1042	3147	2215	187	110
Numeracy total	422	3854	1615	142	37	1069	3683	1562	129	55
Numbers	422	3748	1887	211	71	1069	3531	1822	173	62
Measurement	422	4169	2516	227	227	1069	4292	2556	238	237
Geometry	422	4766	2556	453	452	1069	4510	2427	404	404
Lifeskills total	398	4757	1853	416	81	1068	4781	1724	384	72
Health	398	4684	2215	376	184	1068	4588	2167	346	150
Civics/Environment	398	4765	1931	409	88	1068	4904	1654	459	80
Science & Technology	398	4994	2355	509	137	1068	4781	2377	458	124

Niger	Boys					Girls				
	Number	Mean	SD	M.M.L.	D.M.L.	Number	Mean	SD	M.M.L.	D.M.L.
TOTAL 3 TESTS	757	4140	1397	246	14	688	4260	1463	265	27
Literacy total	726	4079	1883	326	31	660	4133	1907	367	38
Vocabulary	726	8023	2720	873	720	660	8091	2802	882	745
Comprehension	726	4961	2535	494	108	660	5130	2605	483	133
Grammar	726	4134	3307	247	244	660	4437	3402	289	290
Writing/Expression	726	3267	2181	190	118	660	3266	2126	189	95
Numeracy total	757	3674	1540	128	44	681	3807	1622	140	70
Numbers	757	3550	1804	185	58	668	3635	1869	186	72
Measurement	757	4117	2509	213	211	668	4432	2586	259	263
Geometry	757	4516	2398	396	397	668	4226	2551	448	453
Lifeskills total	730	4688	1723	381	75	663	4693	1704	413	77
Health	730	4531	2107	332	150	663	4874	2246	311	175
Civics/Environment	730	4838	1803	442	77	663	4923	1880	461	89
Science & Technology	730	4721	2305	475	122	663	4981	2440	477	136

APPENDIX C-16
COUNTRY DATA: BY TEST DOMAIN, SCHOOL LOCATION, SCHOOL TYPE AND GENDER

SENEGAL

Senegal	Number	Mean	SD	M.M.L.	D.M.L.
TOTAL 3 TESTS	2223	45.20	9.97	31.2	0.2
Literacy total	2287	48.86	18.11	45.6	6.7
Vocabulary	2397	75.19	31.90	81.1	47.0
Comprehension	2397	48.39	22.38	46.8	6.0
Grammar	2397	48.74	32.46	34.1	17.2
Writing/Expression	2287	36.13	24.19	24.1	9.8
Numeracy total	2412	39.73	15.55	22.9	3.0
Numbers	2412	28.94	14.60	7.1	1.1
Measurement	2412	39.37	21.29	18.7	18.7
Geometry	2412	38.35	23.58	29.6	10.1
Lifeskills total	2460	46.68	16.23	36.3	7.0
Health	2460	47.63	18.37	35.5	5.1
Civics/Environment	2462	48.38	19.83	47.8	8.7
Science & Technology	2462	40.55	21.97	32.0	14.7

Senegal	Urban					Rural				
	Number	Mean	SD	M.M.L.	D.M.L.	Number	Mean	SD	Seuil de maîtrise minimum	D.M.L.
TOTAL 3 TESTS	1032	4657	996	3580	040	1191	4402	920	2720	010
Literacy total	1037	4976	1080	3800	730	1202	4811	1295	3170	620
Vocabulary	1084	7637	3135	8540	4640	1294	7436	2529	6130	4520
Comprehension	1084	4873	2280	4810	630	1264	4810	1726	3570	590
Grammar	1084	4917	3014	3630	1270	1264	4823	3183	3230	1690
Writing/Expression	1037	3756	2515	2590	1180	1202	3489	2134	2260	530
Numeracy total	1120	4218	1563	2840	390	1268	3754	1520	1860	210
Numbers	1120	3134	1525	950	170	1268	2675	1063	430	050
Measurement	1120	4112	2126	2160	2160	1268	3808	2130	1650	1650
Geometry	1120	3832	2411	3220	1140	1268	3740	2522	2740	1100
Lifeskills total	1154	4677	1660	3670	790	1306	4659	1584	3500	690
Health	1154	4762	1886	3610	550	1306	4763	1764	3504	470
Civics/Environment	1155	4826	1998	4810	880	1307	4848	1669	4740	1250
Science & Technology	1155	4129	2250	3400	1580	1307	4080	2147	3010	1360

Senegal	Public					Private				
	Number	Mean	SD	M.M.L.	D.M.L.	Number	Mean	SD	M.M.L.	D.M.L.
TOTAL 3 TESTS	1969	4457	980	2860	010	216	5021	952	5230	050
Literacy total	1985	4875	1804	4570	640	216	5886	1734	4440	730
Vocabulary	2081	7574	3159	8190	4760	227	7577	2180	8060	4710
Comprehension	2081	4840	2223	4650	590	227	6175	2136	5070	1130
Grammar	2081	4835	3243	3340	1720	227	5800	3642	3790	1630
Writing/Expression	1985	3537	2378	2320	870	216	4870	2574	2920	1720
Numeracy total	2106	3798	1496	1920	180	234	5336	1870	5210	1240
Numbers	2106	2716	1322	470	040	234	4285	1717	2560	600
Measurement	2106	3792	2083	1640	1640	234	5114	2488	3890	3890
Geometry	2106	3728	2141	2780	920	234	4950	2386	4580	1780
Lifeskills total	2165	4686	1603	3650	690	255	5631	1862	4670	780
Health	2165	4776	1821	3670	490	255	5732	1935	5230	1070
Civics/Environment	2167	4872	1973	4830	900	255	4592	2097	4430	670
Science & Technology	2167	4044	2174	3170	1420	255	4034	2298	3180	1050

Senegal	boys					girls				
	Number	Mean	SD	M.M.L.	D.M.L.	Number	Mean	SD	M.M.L.	D.M.L.
TOTAL 3 TESTS	1257	4554	1021	3210	020	961	4477	964	2990	020
Literacy total	1262	4912	1001	4600	650	971	4861	1833	3590	210
Vocabulary	1328	7571	3134	8210	4700	1012	7504	2285	8040	4760
Comprehension	1328	4834	2510	4680	560	1012	4873	1774	4210	1030
Grammar	1328	4927	3231	3470	1750	1012	4800	3568	3370	1710
Writing/Expression	1262	3623	2421	2380	940	971	3595	2330	2460	1130
Numeracy total	1346	4033	1553	2360	330	1023	3807	1585	2210	560
Numbers	1346	2934	1477	740	130	1023	2843	1427	680	220
Measurement	1346	3892	2124	1910	1910	1023	3907	2196	1860	1860
Geometry	1346	3848	2356	2970	1040	1023	3832	2278	2980	1050
Lifeskills total	1401	4675	1660	3690	760	1047	4661	1610	3580	650
Health	1401	4769	1875	3650	560	1047	4763	1651	3450	450
Civics/Environment	1402	4847	1992	4820	860	1048	4833	1694	3740	1064
Science & Technology	1402	4065	2247	3220	1520	1048	4039	2131	3170	1060

APPENDIX C-17
COUNTRY DATA: BY TEST DOMAIN, SCHOOL LOCATION, SCHOOL TYPE AND GENDER

TUNISIA

Tunisia	Number	Mean	SD	M.M.L	D.M.L
TOTAL 3 TESTS	3649	71.04	13.28	92.6	49.2
Literacy total	3695	77.91	15.08	95.1	70.8
Vocabulary	3695	74.51	26.92	88.9	72.8
Comprehension	3695	81.35	15.80	95.2	53.7
Grammar	3695	76.44	21.99	88.1	65.0
Writing/Expression	3695	77.79	17.68	90.1	67.8
Numeracy total	3747	60.38	18.42	31.6	33.0
Numbers	3747	63.28	21.77	49.2	16.9
Measurement	3747	54.83	24.38	69.9	44.0
Geometry	3747	70.33	23.85	80.6	80.6
Lifeskills total	3750	74.65	13.39	95.1	56.7
Health	3750	70.19	16.33	92.6	48.7
Civics/Environment	3750	79.64	15.19	95.3	73.0
Science & Technology	3750	72.05	19.88	92.5	50.3

Tunisia	Urban					Rural				
	Number	Mean	SD	M.M.L.	D.M.L.	Number	Mean	SD	M.M.L.	D.M.L.
TOTAL 3 TESTS	2091	7313	1242	9580	5520	926	6557	1423	842	337
Literacy total	2119	7962	1373	9610	7460	934	7342	1757	876	610
Vocabulary	2119	7652	2482	7630	7630	934	6879	2994	632	632
Comprehension	2119	8270	1451	9670	5690	934	7737	1831	911	441
Grammar	2119	7802	2090	9030	6800	934	7128	2402	810	552
Writing/Expression	2119	7929	1676	9210	7060	934	7406	1979	843	611
Numeracy total	2127	6284	1815	7200	3750	932	5375	1724	523	208
Numbers	2127	5587	2159	5380	1900	932	4614	1967	363	93
Measurement	2127	5683	2495	4830	4830	932	4830	2358	304	304
Geometry	2127	7253	2370	8320	8320	932	6388	2408	717	717
Lifeskills total	2134	7658	1247	9700	6300	933	6960	1467	895	412
Health	2134	7243	1586	8820	5750	933	6369	1668	736	339
Civics/Environment	2134	8181	1402	9640	7880	933	7570	1685	924	643
Science & Technology	2134	7279	1867	8110	5300	933	6718	2187	693	383

Tunisia	Boys					Girls				
	Number	Mean	SD	M.M.L.	D.M.L.	Number	Mean	SD	M.M.L.	D.M.L.
TOTAL 3 TESTS	1888	7119	1340	924	509	1691	7122	1294	936	482
Literacy total	1909	7704	1556	930	695	1708	7927	1410	954	732
Vocabulary	1909	7382	2704	724	724	1708	7561	2649	737	737
Comprehension	1909	8052	1613	948	516	1708	8269	1489	964	566
Grammar	1909	7532	2242	867	632	1708	7820	2096	905	677
Writing/Expression	1909	7694	1840	887	662	1708	7908	1655	923	703
Numeracy total	1927	6180	1823	698	357	1719	5941	1835	642	311
Numbers	1927	5461	2179	519	183	1719	5241	2165	471	161
Measurement	1927	5652	2390	468	468	1719	5337	2484	418	418
Geometry	1927	7148	2356	821	196	1719	7273	2369	797	747
Lifeskills total	1919	7471	1353	949	787	1720	7497	1389	960	569
Health	1919	6885	1628	847	576	1720	7080	1617	853	525
Civics/Environment	1919	7976	1546	950	733	1720	7988	1456	960	734
Science & Technology	1919	7281	1989	804	524	1720	7380	1643	771	390

APPENDIX C-18
COUNTRY DATA: BY TEST DOMAIN, SCHOOL LOCATION, SCHOOL TYPE AND GENDER

UGANDA

Uganda	Valid N	Mean	SD	ML Min	ML Max
TOTAL 3 TESTS	8493	57	16	54.4	14.4
Literacy total	8493	59	23	64.3	23.3
Vocabulary	8493	74	32	84.7	72.6
Comprehension	8493	57	26	63.4	28.6
Writing/Expression	8493	43	27	44.7	22.6
Grammar	8493	55	35	55.3	25.5
Numeracy total	8493	50	18	41.9	10.2
Numbers	8493	49	20	39.0	12.5
Geometry	8493	53	24	44.6	27.2
Measurement	8493	48	22	46.0	15.2
Lifeskills total	8493	67	20	78.8	51.1
Civics/Environment	8493	66	25	81.0	63.9
Health	8493	69	25	83.3	48.2
Science & Technology	8493	64	24	80.1	35.7

Uganda	Boys					Girls				
	Valid N	Mean	SD	MML	DML	Valid N	Mean	SD	MML	DML
Literacy total	3540	53	23	638	198	3536	54	24	643	202
Vocabulary	3540	73	33	850	338	3536	77	33	846	334
Comprehension	3540	56	26	620	214	3536	58	26	631	225
Writing/Expression	3540	41	27	425	208	3536	43	27	450	234
Grammar	3540	52	35	536	209	3536	54	35	564	254
Numeracy total	3540	51	18	547	131	3536	48	18	457	114
Numbers	3540	50	20	502	164	3536	48	20	434	116
Geometry	3540	55	24	563	254	3536	51	24	508	258
Measurement	3540	50	22	586	196	3536	46	23	511	168
Lifeskills total	3540	69	19	828	548	3536	66	20	765	489
Civics/Environment	3540	68	25	838	666	3536	65	25	809	629
Health	3540	71	24	859	502	3536	68	25	842	471
Science & Technology	3540	68	24	849	428	3536	65	24	795	314

Uganda	Urban					Rural				
	Valid N	Mean	SD	MML	DML	Valid N	Mean	SD	MML	DML
Literacy total	2722	61	22	734	320	4372	54	21	631	194
Vocabulary	2722	80	28	882	785	4372	74	30	868	728
Comprehension	2722	62	23	705	329	4372	57	24	633	280
Writing/Expression	2722	52	28	586	351	4372	40	24	393	168
Grammar	2722	59	35	601	304	4372	55	34	565	231
Numeracy total	2722	49	18	391	86	4372	51	18	457	119
Numbers	2722	49	19	376	118	4372	50	20	416	119
Geometry	2722	53	24	432	268	4372	53	24	469	280
Measurement	2722	45	22	389	120	4372	50	23	517	187
Lifeskills total	2722	67	20	795	512	4372	68	20	795	524
Civics/Environment	2722	68	26	813	649	4372	67	24	820	642
Health	2722	72	24	860	548	4372	69	25	826	454
Science & Technology	2722	63	23	800	316	4372	66	24	809	385

Uganda	Public					Private				
	Valid N	Mean	SD	MML	DML	Valid N	Mean	SD	MML	DML
Literacy total	6139	54	21	639	197	842	72	18	886	578
Vocabulary	6139	75	30	862	729	842	89	22	946	903
Comprehension	6139	57	24	632	264	842	73	20	861	555
Writing/Expression	6139	42	25	424	191	842	65	25	766	574
Grammar	6139	54	34	548	230	842	71	33	741	464
Numeracy total	6139	49	18	418	96	842	59	17	517	196
Numbers	6139	48	20	384	120	842	60	18	520	219
Geometry	6139	52	24	448	267	842	62	23	500	326
Measurement	6139	48	23	465	155	842	54	23	504	205
Lifeskills total	6139	66	20	783	496	842	75	17	906	710
Civics/Environment	6139	66	24	809	627	842	76	23	897	779
Health	6139	69	25	828	464	842	79	20	928	703
Science & Technology	6139	64	24	800	349	842	69	23	852	442

APPENDIX C-19
COUNTRY DATA: BY TEST DOMAIN, SCHOOL LOCATION, SCHOOL TYPE AND GENDER

ZAMBIA

Zambia	Valid N	Mean	SD	ML Min	ML Max
TOTAL 3 TEST	1761	43.39	16.68	31.9	5.6
Literacy total	1932	43	18	37.8	7.3
Vocabulary	1932	72	30	83.6	67.7
Comprehension	1932	45	20	38.8	7.9
Writing/Expression	1932	28	25	22.9	8.8
Grammar	1932	49	32	46.6	17.0
Numeracy total	1880	36	17	19.9	4.4
Numbers	1880	36	19	26.5	3.4
Geometry	1880	37	25	39.0	8.8
Measurement	1880	35	20	20.5	5.8
Lifeskills total	1964	51	23	49.0	26.1
Civics/Environment	1964	52	27	60.9	39.3
Health	1964	52	26	53.6	26.4
Science & Technology	1964	48	25	57.5	15.8

Zambia

Descriptive analysis of test scores by gender

	Boys					Girls				
	Count	Mean	SD	M.M.L.	D.M.L.	Count	Mean	SD	M.M.L.	D.M.L.
Literacy total	889	415	168	163	18	910	433	180	183	19
Vocabulary	889	659	302	387	71	910	718	296	805	87
Comprehension	889	436	188	172	176	910	448	183	187	186
Writing: Expression	889	257	241	87	152	910	281	259	112	30
Grammar	889	476	313	211	88	910	493	317	225	117
Numeracy total	889	347	167	82	101	910	353	171	86	122
Numbers	889	351	181	110	18	910	357	193	117	15
Measurement	889	347	196	85	14	910	347	198	89	19
Geometry	889	357	249	163	26	910	365	242	175	28
LifeSkills total	889	495	220	229	64	910	503	230	238	80
Civics: Environment	889	504	272	284	100	910	514	279	291	114
Science & Tech	889	486	256	281	82	910	498	261	287	130
Health	889	496	247	309	84	910	521	255	325	108

Descriptive analysis of test scores by school location

	Urban					Rural				
	Count	Mean	SD	M.M.L.	D.M.L.	Count	Mean	SD	M.M.L.	D.M.L.
Literacy total	918	458	183	284	100	457	394	164	87	37
Vocabulary	918	747	291	548	214	457	630	286	348	157
Comprehension	918	475	193	282	93	457	418	176	96	48
Writing: Expression	918	304	248	161	108	457	232	232	57	38
Grammar	918	514	314	312	169	457	457	315	139	132
Numeracy total	918	384	169	151	94	457	328	163	57	42
Numbers	918	388	183	194	47	457	330	179	61	39
Measurement	918	374	200	145	53	457	334	194	60	50
Geometry	918	411	244	271	132	457	324	232	96	72
LifeSkills total	918	548	214	361	313	457	470	196	190	132
Civics: Environment	918	551	265	403	225	457	491	258	288	136
Science & Tech	918	490	247	341	148	457	469	241	233	102
Health	918	576	247	392	324	457	460	251	146	125

Descriptive analysis of test scores by school type

	Public					Private				
	Count	Mean	SD	M.M.L.	D.M.L.	Count	Mean	SD	M.M.L.	D.M.L.
Literacy total	1177	410	164	106	15	178	618	170	275	36
Vocabulary	1177	695	283	124	112	178	868	266	434	49
Comprehension	1177	432	182	99	264	178	614	170	264	71
Writing: Expression	1177	248	229	63	18	178	486	256	154	15
Grammar	1177	475	304	91	104	178	661	291	208	104
Numeracy total	1177	348	162	63	180	178	491	164	208	95
Numbers	1177	353	174	61	30	178	489	171	190	10
Measurement	1177	339	192	52	19	178	483	184	181	10
Geometry	1177	365	243	77	75	178	503	236	243	15
LifeSkills total	1177	497	218	103	166	178	694	192	335	64
Civics: Environment	1177	504	268	109	172	178	735	260	439	69
Science & Tech	1177	488	251	98	134	178	708	251	401	84
Health	1177	507	251	108	120	178	743	250	414	97

APPENDIX D: DATA FROM 1992 - 1998 MLA SURVEYS

	MEAN SCORES OF SUB-GROUPS NUMERACY		
	Urban/Rural	Girl/Boy	Private/Public
MALI	101.2/98.86	98.93/100.59	102.3/98.16
MAURITIUS	72.4/60.8	64.3/63.4	54/67.7
MOROCCO	67.22/53.6	63.43/62.02	78.87/59.03
NIGERIA	35/30.33	31.9/32.42	43.09/30.13
MOZAMBIQUE	57.8/57.1	54.7/59.2	—
RODRIGUES	—	52.4/51.8	51.1/53.2
SAO TOME & PRINCIPE	51.65/43.62	48.3/47.2	—

	MEAN SCORES OF SUB-GROUPS LITERACY		
	Urban/Rural	Girl/Boy	Private/Public
MALI	101.85/98.25	99.91/100.04	99.68/98.05
MAURITIUS	62.6/50.8	56.4/53.3	42.9/58.1
MOROCCO	63.25/44.89	61.29/54.05	72.62/53.57
NIGERIA	28.9/22.6	25.8/24.8	40.8/15.3
MOZAMBIQUE	46.2/42.7	43.1/43.9	—
RODRIGUES		39.3/30.8	32.9/37.8
SAO TOME & PRINCIPE	53.02/40.37	48.1/44.8	—

	MEAN SCORES OF SUB-GROUPS LIFE SKILLS		
	Urban/Rural	Girl/Boy	Private/Public
MALI	101.67/98.46	100.59/99.67	99.41/99.78
MAURITIUS	62/65.2	63.7/64.5	56.3/66.1
MOROCCO	75.67/60.3	73.4/68.42	81.31/68.09
NIGERIA	35.02/31.02	32.77/32.62	43.12/30.63
MOZAMBIQUE	57.3/58.4	57.2/58.3	—
RODRIGUES	—	43.9/42	43.5/42.5
SAO TOME & PRINCIPE	73.63/70.66	74.3/69.8	—

APPENDIX E
TABLE OF EFFECTS & CORRELATION MATRICES BY COUNTRY

BOTSWANA

Only three of the constructs in the global model could not be used in the model for Botswana. They are *Safety and Security*, *Socio Economic Status* and *Chalkboard*.

The measurement model

The elimination of variables resulted in constructs that are measured by fewer variables than originally intended. For each construct, all the variables are indicated in the diagram, but only those that could be used in the analysis have coefficients. For example, in the Home learning support construct, all three variables could be used. The first two contribute about equally to the composition of the construct while the contribution of the third one is far less.

The structural model

The selected variables in this model explain 20% of the variation in the achievement of the learners.

Constructs that receive an arrow (solid line) from *School location/type* are significantly different for Urban and Rural schools. For example, the home background of the learners in Urban schools are very different from those in Rural schools. The positive coefficient (0,60) indicates that the home background is much better in Urban schools.

The following table provides the direct, indirect and total effects of the predictor constructs on the *Learner Performance* construct.

Table of Effects

Predictors	LEARNER PERFORMANCE (LP)		
	Direct effect	Indirect effect	Total effect
School location/type (SLT)	-	0.16	0.16
Access to school (AS)	0.00	-	0.00
Home background (HBG)	0.12	0.00	0.13
Assessment practices (AP)	0.17	-	0.17
Family education level (FEL)	0.20	0.01	0.21
Home learning environment (HLE)	-0.02	-	-0.02
Home learning support (HLS)	0.05	-	0.05
Attitude to school and teacher (ATT)	0.01	-	0.01
School learning environment (SLE)	0.09	-	0.09
Learner characteristics (LC)	-0.13	-	-0.13
Homework (HW)	-0.14	-	-0.14
Teacher characteristics (TC)	-0.01	-	-0.01
Classroom characteristics (CC)	0.03	-	0.03
	R-square = 0.20		

Correlations between constructs

	FEL	HBG	HLS	AS	LP	HLE	CC	TC	SLE	SLT	HW	LC	AP	ATT
FEL	1.000													
HBG	0.554	1.000												
HLS	0.179	0.144	1.000											
AS	0.053	0.085	-0.021	1.000										
LP	0.311	0.258	0.113	0.035	1.000									
HLE	0.144	0.229	0.057	0.054	0.077	1.000								
CC	0.058	0.082	0.023	0.022	-0.013	0.059	1.000							
TC	0.191	0.304	0.075	0.072	0.120	0.193	0.078	1.000						
SLE	0.113	0.181	0.045	0.043	0.154	0.115	0.046	0.152	1.000					
SLT	0.377	0.601	0.149	0.142	0.253	0.382	-0.154	0.505	0.301	1.000				
HW	0.064	0.102	0.025	0.024	0.178	0.065	0.026	0.086	0.051	0.170	1.000			
LC	0.132	0.210	-0.052	0.050	-0.195	0.134	0.054	-0.177	-0.105	-0.350	0.058	1.000		
AP	0.043	0.068	0.017	0.016	0.194	0.044	0.018	0.058	0.034	0.114	0.027	-0.001	1.000	
ATT	0.050	0.080	0.020	0.019	0.053	0.050	0.020	0.067	0.040	0.132	-0.099	0.029	0.049	1.000

MADAGASCAR

Twelve of the constructs in the global model could not be used in the model for Madagascar. They are *Access to School, Assessment Practices, Home Learning Environment, Classroom characteristics, Attitude to school and teacher, Home background, Pupil characteristics, Homework, Safety and Security, Teacher characteristics, Chalkboard* and *School Learning Environment*.

The measurement model

Two of the three tests in the *Learner Performance* construct, Numeracy and Literacy, contribute highly (0,74 and 0,86) to the construct while Life skills has a low contribution (0,54). In the *School location/type* construct, Urban/Rural has a positive coefficient while Private/Public has a negative coefficient. This means that the private schools (code 0) are mostly in Urban areas (code 1), and a high value on this construct corresponds to Urban and/or Private schools.

The structural model

The selected variables in this model explain 64% of the variation in the achievement of the learners.

All paths, except for the path from *School location/type*, to *Learner Performance* have negative coefficients, while the expectation would be that the influences on performance are positive. The very strong direct effect of *School location/type* on performance (1,12) seems to cause this apparent contradiction. The reason for this (and for the coefficient greater than one) lies in high correlations among the constructs (multicolinearity).

The following table provides the direct, indirect and total effects of the predictor constructs on the *Learner Performance* construct.

Table of Effects

Predictors	LEARNER PERFORMANCE (LP)		
	Direct effect	Indirect effect	Total effect
School location/ type (SLT)	1.12	-0.41	0.71
Socio Economic Status (SES)	-0.42	0.04	-0.38
Home learning support (HLS)	-0.26		-0.26
Family education level (FEL)	-0.03	-0.04	-0.08
	R-square = 0,64		

Correlations between constructs

	LP	FEL	HLS	SES	SLT
LP	1.000				
FEL	0.342	1.000			
HLS	0.049	0.308	1.000		
SES	0.302	0.445	0.185	1.000	
SLT	0.709	0.577	0.357	0.703	1.000

MALAWI

Nine of the constructs in the global model could not be used in the model for Malawi. They are *Safety and Security, Attitude to School and Teacher, Assessment Practices, Pupil characteristics, Socio Economic Status, Classroom characteristics, Chalkboard, Home Learning Environment* and *Teacher characteristics*.

The measurement model

Of the two variables in the *Homework* construct, the first one (unable because of family reasons) contributes the most to this construct. In the *Learner Performance* construct, Numeracy does not contribute as much as the other two tests. The coefficients for the two variables in the *Family Education Level* construct indicate that the father's and mother's education level contribute equally to the composition of this construct.

The structural model

The selected variables in this model explain 21% of the variation in the achievement of the learners.

The positive coefficient (0,20) for the path from *School Learning Environment* to *Learner Performance* indicates that the former construct has a positive influence on the performance of the learners. The same can be said for the education level of the parents (coefficient=0,25).

The following table provides the direct, indirect and total effects of the predictor constructs on the *Learner Performance* construct.

Table of Effects

Predictors	LEARNER PERFORMANCE (LP)		
	Direct effect	Indirect effect	Total effect
School location/type (SLT)	-	0,23	0,23
Access to school (AS)	0,28	-	0,28
Home background (HBG)	0,10	0,02	0,12
Home learning support (HLS)	0,04	-	0,04
School learning environment (SLE)	0,20	-	0,20
Family education level (FEL)	0,25	-0,02	0,23
Homework (HW)	-0,13	-	-0,13
	R-square = 0,21		

Correlations between constructs

	SES	AS	LP	SLE	FEL	HLS	HW	SLT
SES	1.000							
AS	0.292	1.000						
LP	0.230	0.181	1.000					
SLE	0.273	-0.094	0.254	1.000				
FEL	0.687	-0.236	0.274	0.221	1.000			
HLS	-0.343	0.143	-0.104	0.134	-0.499	1.000		
HW	0.012	0.004	-0.124	0.004	0.010	0.006	1.000	
SLT	0.922	0.316	0.229	0.296	0.745	-0.453	0.013	1.000

MALI

Seven of the constructs in the global model could not be used in the model for Mali. They are *Safety and Security, Access to School, Home Learning Support, Chalkboard, Assessment Practices, Pupil characteristics* and *School Learning Environment.*

The measurement model

In the *Socio Economic Status* construct, the question whether the family stays in their own house could not be used. The other two variables in this construct (amenities and household goods indeces) contribute equally to the composition of the construct. The coefficients of the two variables in the *School location/type* construct show that the contribution of Urban/Rural is about twice that of Private/Public. This construct can therefore be seen as discriminating more between Urban and Rural than between Private and Public.

The structural model

The selected variables in this model explain 30% of the variation in the achievement of the learners.

Constructs that receive an arrow (solid line) from *School location/type* are significantly different for Urban and Rural schools. For example, the home learning environment of the learners in Urban schools are very different from those in Rural schools. The positive coefficient (0,52) indicates that the environment is more stimulating in Urban schools. Also, the high positive coefficients for the paths from *School location/type* to *Home background, Socio Economic Status* and *Family Education Level* indicate a much more stimulating environment for the learners in Urban areas in terms of the home they live in and the education level of their parents.

The following table provides the direct, indirect and total effects of the predictor constructs on the *Learner Performance* construct.

Table of Effects

Predictors	LEARNER PERFORMANCE (LP)		
	Direct effect	Indirect effect	Total effect
School location/ type (SLT)	-	0,39	0,39
Socio Economic Status (SES)	0,63	-0,07	0,56
Home background (HBG)	-0,07	-0,05	-0,11
Family education level (FEL)	0,01	-0,12	-0,11
Home learning environment (HLE)	-0,16	-	-0,16
Attitude to school and teacher (ATT)	-0,07	-	-0,07
Homework (HW)	-0,08	-	-0,08
Teacher characteristics (TC)	-0,30	-	-0,30
Classroom characteristics (CC)	-0,16	-	-0,16
	R-square = 0,30		

Correlations between constructs

	FEL	HLE	TC	CC	LP	HBG	SES	SLT	HW	ATT
FEL	1.000									
HLE	0.867	1.000								
TC	0.142	0.126	1.000							
CC	0.008	0.007	0.002	1.000						
LP	0.285	0.236	-0.210	-0.154	1.000					
HBG	0.586	0.650	0.157	0.008	0.295	1.000				
SES	0.790	0.746	0.187	0.010	0.404	0.811	1.000			
SLT	0.720	0.638	0.198	0.011	0.383	0.793	0.945	1.000		
HW	0.069	-0.061	-0.019	0.001	-0.113	0.076	-0.090	0.095	1.000	
ATT	0.108	0.096	0.030	0.002	0.005	0.119	0.142	0.150	-0.024	1.000

MAURITIUS

Only five of the constructs in the global model could not be used in the model for Mauritius. They are *Attitude to School and Teacher Pupil characteristics*, *Socio Economic Status*, *Chalkboard* and *School Learning Environment*.

The measurement model

The three tests in the *Learner Performance* construct contribute almost equally to the composition of the construct. The coefficients for the two variables in the *Family Education Level* construct indicate that the father's and mother's education level contribute equally to the composition of this construct.

The structural model

The selected variables in this model explain 44% of the variation in the achievement of the learners.

There is a significant negative path from *Safety and Security* to *Learner Performance*. This means that learners in 'unsafe' schools (schools far from a police station) generally perform worse. The negative path from *Homework* to *Learner Performance* indicates that the learners who are sometimes prevented from doing homework generally do worse than the others.

The following table provides the direct, indirect and total effects of the predictor constructs on the *Learner Performance* construct.

Table of Effect

Predictors	LEARNER PERFORMANCE (LP)		
	Direct effect	Indirect effect	Total effect
School location / type (SLT)	-	0,43	0,43
Access to school (AS)	0,03		0,03
Home background (HBG)	0,09		0,09
Safety and Security (SS)	-0,19		-0,19
Home learning environment (HLE)	-0,17		-0,17
Home learning support (HLS)	0,03		0,03
Assessment practices (AP)	0,03		0,03
Family education level (FEL)	0,64	-0,15	0,49
Homework (HW)	-0,22		-0,22
Classroom characteristics (CC)	0,04		0,04
Teacher characteristics (TC)	-0,01		-0,01
	R-square = 0,44		

Correlations between constructs

	FEL	SES	HLS	AS	LP	HLE	SS	TC	CC	SLT	HW	AP
FEL	1.000											
SES	0.506	1.000										
HLS	0.574	0.282	1.000									
AS	0.169	0.141	0.097	1.000								
LP	0.591	0.384	0.357	0.157	1.000							
HLE	0.960	0.488	0.551	0.163	0.554	1.000						
SS	-0.320	-0.268	-0.184	-0.210	-0.364	-0.308	1.000					
TC	0.164	0.138	0.094	0.108	0.131	0.158	-0.205	1.000				
CC	0.290	0.242	0.166	0.180	0.255	0.279	-0.361	0.247	1.000			
SLT	0.507	0.424	0.291	0.333	0.400	0.488	-0.631	0.324	0.571	1.000		
HW	-0.132	-0.111	-0.076	-0.087	-0.307	-0.127	0.165	-0.085	-0.149	-0.261	1.000	
AP	0.090	0.075	0.052	0.059	0.075	0.087	-0.112	0.058	0.102	0.178	-0.047	1.000

MOROCCO

Eleven of the constructs in the global model could not be used in the model for Morocco. They are *Access to School, Assessment Practices, Home Learning Environment, Classroom characteristics, Pupil characteristics, Home learning support, Family Education Level, Teacher characteristics, Socio Economic Status, Chalkboard* and *School Learning Environment.*

The measurement model

The three tests, Numeracy, Literacy and Life Skills, do not correlate for the Morocco data and could therefore not be used to form a construct. Consequently, the three test scores were added to form only one total score.

The structural model

The selected variables in this model explain 23% of the variation in the achievement of the learners.

The only significant path to *Learner Performance* is the path from *Safety and Security*. The paths from School location/type indicate big Urban-Rural differences in *Home background* and *Safety and Security*.

The following table provides the direct, indirect and total effects of the predictor constructs on the *Learner Performance* construct.

Table of Effect

Predictors	LEARNER PERFORMANCE (LP)		
	Direct effect	Indirect effect	Total effect
School location/type (SLT)	-	0.39	0.39
Home background (HBG)	-0.38	-	-0.38
Safety and Security (SS)	0.80	-	0.80
Attitude to School and Teacher (ATT)	-0.04	-	-0.04
Homework (HW)	-0.02	-	-0.02
	R-square = 0.23		

Correlations between constructs

	LP	SS	HBG	SLT	HW	ATT
LP	1.000					
SS	0.448	1.000				
HBG	0.331	0.901	1.000			
SLT	0.377	0.939	0.359	1.000		
HW	-0.134	-0.291	-0.297	-0.309	1.000	
ATT	0.102	0.335	0.342	0.357	-0.006	1.000

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NIGER

Ten of the constructs in the global model could not be used in the model for Niger. They are *Safety and Security, Access to School, Home Learning Support, Attitude to School and Teacher, Assessment Practices, Pupil characteristics, Classroom characteristics, Family Education Level, Home Learning Environment* and *Teacher characteristics*.

The measurement model

In all the constructs in this model, except for *Learner Performance* and *Homework*, only one variable could be used. Of the two variables in the Homework construct, the first one (unable because of family reasons) contributes the most to this construct. In the *Learner Performance* construct, Life Skills does not contribute as much as the other two tests.

The structural model

The selected variables in this model explain 62% of the variation in the achievement of the learners.

There are quite strong direct effects of *Chalkboard* (coefficient=0,53) and *Socio Economic Status* (coefficient=0,51) on *Learner Performance*.

The following table provides the direct, indirect and total effects of the predictor constructs on the *Learner Performance* construct.

Table of Effect

Predictors	LEARNER PERFORMANCE (LP)		
	Direct effect	Indirect effect	Total effect
School location/ type (SLT)	-	0,11	0,11
Socio Economic Status (SES)	-	-	0,51
Home background (HBG)	-	-	0,05
School Learning Environment (SLE)	-	-	0,30
Chalkboard (CHB)	-	-	0,53
Homework (HW)	-	-	0,19
	R-square = 0,62		

Correlations between constructs

	SES	LP	CHB	SLE	HBG	HW	SLT
SES	1.000						
LP	0.452	1.000					
CHB	-0.065	0.507	1.000				
SLE	-0.087	0.273	0.028	1.000			
HBG	0.153	0.079	-0.048	-0.065	1.000		
HW	-0.019	0.182	0.006	0.008	-0.014	1.000	
SLT	0.453	0.105	-0.144	-0.192	0.337	-0.042	1.000

SENEGAL

Twelve of the constructs in the global model could not be used in the model for Senegal. They are *School location/type, Access to School, Assessment Practices, Home Learning Environment, Classroom characteristics, Pupil characteristics, Safety and Security, Family Education Level, Teacher characteristics, Socio Economic Status, Chalkboard* and *School Learning Environment*.

The measurement model

The three tests, Numeracy, Literacy and Life Skills, do not correlate for the Senegal data and could therefore not be used to form a construct. Consequently, the three test scores were added to form only one total score.

The structural model

The selected variables in this model explain 19% of the variation in the achievement of the learners.

None of the paths in this model is statistically significant at the 5% level. This is not surprising, since the correlations of the manifest variables with the total score are all very low (less than 0,1).

The following table provides the direct, indirect and total effects of the predictor constructs on the *Learner Performance* construct.

Table of Effect

Predictors	LEARNER PERFORMANCE (LP)		
	Direct effect	Indirect effect	Total effect
Home learning support (HLS)	-0,44	-	-0,44
Home background (HBG)	0,62	-0,32	0,30
Attitude to School and Teacher (ATT)	-0,06	-	-0,06
Homework (HW)	-0,07	-	-0,07
	R-square = 0,19		

Correlations between constructs

	LP	HLS	ATT	HBG	HW
LP	1.000				
HLS	0.018	1.000			
ATT	-0.019	0.079	1.000		
HBG	0.308	0.728	0.108	1.000	
HW	0.112	-0.102	-0.079	-0.141	1.000

TUNESIA

Eleven of the constructs in the global model could not be used in the model for Tunisia. They are *Access to School, Assessment Practices, Home Learning Environment, Classroom characteristics, Attitude to school and teacher, Home background, Pupil characteristics, Safety and Security, Teacher characteristics, Chalkboard* and *School Learning Environment*.

The measurement model

The three tests, Numeracy, Literacy and Life Skills, contribute about equally to the *Learner Performance* construct. Of the other constructs, only the *Family education level* constructs have more than one variable that measures the construct.

The structural model

The selected variables in this model explain 46% of the variation in the achievement of the learners.

All paths, except for the path from *School location/type* to *Learner Performance*, are not significant. The very strong direct effect of Urban/Rural on performance (0,94) seems to explain most of the differences in the performance of the learners, which explains why the effects of the other constructs are not significant.

The following table provides the direct, indirect and total effects of the predictor constructs on the *Learner Performance* construct.

Table of Effect

Predictors	LEARNER PERFORMANCE (LP)		
	Direct effect	Indirect effect	Total effect
School location/ type (SLT)	0,94	-0,31	0,63
Socio Economic Status (SES)	-0,34	-0,02	-0,35
Home learning support (HLS)	-0,16		-0,16
Homework (HW)	-0,05		-0,05
Family education level (FEL)	-0,01	-0,01	-0,02
	R-square = 0,46		

Correlations between constructs

	LP	FEL	HLS	SES	HW	SLT
LP	1.000					
FEL	0.455	1.000				
HLS	0.137	0.126	1.000			
SES	0.369	0.589	0.171	1.000		
HW	0.280	0.270	0.142	0.291	1.000	
SLT	0.634	0.713	0.375	0.768	0.379	1.000

UGANDA

Ten of the constructs in the global model could not be used in the model for Uganda. They are *Safety and Security, Access to School, Assessment Practices, Homework, Home Learning Environment, Classroom characteristics, Attitude to School and Teacher, Socio Economic Status, Chalkboard* and *School Learning Environment.*

The measurement model

The three variables in the *Home Learning Support* construct contribute almost equally to the composition of the construct, as do the two variables in the *Family Education Level* construct.

The structural model

The selected variables in this model explain only 6% of the variation in the achievement of the learners.

The paths to *Learner Performance* have generally very small coefficients, the two biggest direct effects are from *Home Background* (0,10) and *Teacher characteristics* (0,14). This means that learners with a stimulating home background and those with more experienced and older teachers generally perform better.

The following table provides the direct, indirect and total effects of the predictor constructs on the *Learner Performance* construct.

Table of Effect

Predictors	LEARNER PERFORMANCE		
	Direct effect	Indirect effect	Total effect
School location / type (SLT)	-	0,15	0,15
Home background (HBG)	0,10	0,01	0,11
Home learning support (HLS)	0,09		0,09
Family education level (FEL)	0,04	0,03	0,07
Learner characteristics (LC)	-0,05		-0,05
Teacher characteristics (TC)	0,14		0,14
	R-square = 0,06		

Correlations between constructs

	FEL	SES	HLS	LP	TC	LC	SLT
FEL	1.000						
SES	0.488	1.000					
HLS	0.333	0.191	1.000				
LP	0.147	0.159	0.133	1.000			
TC	0.045	0.036	0.014	0.148	1.000		
LC	-0.439	-0.350	-0.135	-0.121	-0.032	1.000	
SLT	0.782	0.624	0.241	0.152	0.057	-0.562	1.000

ZAMBIA

Eleven of the constructs in the global model could not be used in the model for Zambia. They are *Safety and Security*, *Attitude to School and Teacher*, *Assessment Practices*, *Pupil characteristics*, *Socio Economic Status*, *Classroom characteristics*, *Chalkboard*, *Home Learning Environment*, *School Learning Environment*, *Homework* and *Teacher characteristics*.

The measurement model

Of the three tests in the *Learner Performance* construct, Numeracy (0,68) does not contribute as much to this construct as the other two tests (0,82 and 0,83). The coefficients for the two variables in the *Family Education Level* construct indicate that the father's and mother's education level contribute equally to the composition of this construct.

The structural model

The selected variables in this model explain 18% of the variation in the achievement of the learners.

The large positive coefficients for the paths from *School Location/Type* to *Home Background* and *Family Education Level* indicate that there are big Urban-Rural differences in the latter two constructs. For each, the circumstances in the Urban areas are more stimulating for the learners. The education level of the parents has a significant direct influence (coefficient=0,14) on learner performance, however, the direct influence of the home background is higher (0,28).

The following table provides the direct, indirect and total effects of the predictor constructs on the *Learner Performance* construct.

Table of Effect

Predictors	LEARNER PERFORMANCE (LP)		
	Direct effect	Indirect effect	Total effect
School location/type (SLT)	-	0,35	0,35
Access to school (AS)	0,02	-	0,02
Home background (HBG)	0,28	0,02	0,30
Home learning support (HLS)	-0,08	-	-0,08
Family education level (FEL)	0,14	0,04	0,19
	R-square = 0,18		

Correlations between constructs

	SES	AS	HLS	FEL	LP	SLT
SES	1 000					
AS	-0 364	1 000				
HLS	0 393	0 173	1 000			
FEL	0 584	-0 312	-0 538	1 000		
LP	0 387	-0 138	-0 265	0 342	1 000	
SLT	0 825	-0 441	-0 392	0 708	0 354	1 000

APPENDIX F

LIST OF PARTICIPANTS FOR MLA AND CTL WORKSHOPS IN AFRICA

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